TestoiHSO 4113

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 REN 2,0 e 4. Edition

En

supersedes 3.83

company: Renault

ngine F8 M

VE 4/9 F 2400 R 95

0 460 494 105

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/.

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1400	4,1-4,5	mm		:
1 2 Supply pump pressure	1400	4,9-5,5	bar (kgt/cm²)		i :
1 3 Full-load delivery without	1000	30,7-31,7	cm ³ /1000 strokes		2,5 (3,0)
charge-air pressure Full-load delivery with	-	-	cm ³ /1000 strokes		
charge-air pressure	425	6,0-10,0	cm ³ /1000 strokes		2,0 (3,0)
1 5 Start	100	min. 42,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	2650	10,5-16,5	cm ³ /1000 strokes	:	1
1.7 Load-dependent start of delivery	1400	-			

2. Test Spe	cifications	checking values in brackets ()		
2.1 Timing device	n = rev/min	1000 2,3-3,1(2,0-3,4)	1400 (3,6-5,0)	2000 6,3-7,1(6,0-7,4)	2400 7,0-7,7(6,6-8,0)
2.2 Supply pump	n = rev/min bar (kgt/cm²)	600 2,5-3,1			2400 7,7-8,3
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)			2400 55-138(40-153)

	cm-/110 s	33-130(40 100)			
2.3 Fuel delivenes			:	3. Dimer	18i013 for assembly and adjustment
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	mm
End stop	2750	max. 6,0 (9,5-17,5	5)	: к	3,2-3,4
	2650 2500	21,0-29,0 (21,0-29,0		KF	5,7-5,9
	2400 2100	27,5-30,1 (26,5-31,6 28,9-31,3 (27,8-32,4	1)	MS	1,2-1,4
	1400 1000 600	31,7-33,7 (30,4-35,0 (28,9-33,5 25,2-28,2 (23,7-29,7	0) [*] 5)	svs	2,8
				ж	18,7-20,7
switch-off	2400	0		ጺ	9,5-12,8
Idle stop	650 600 425	0 0,2-5,2 (4,0-12,	0)		ote instruc- sheet 2.
End stop	330 500	min. 30,0 max. 29,0			

BOSCH

2.4 Solenoid

menicut-in voltage XXX min. 10,0 V

wxxxxxxxxx rated voltage 12V.

Testing the hydr. cold-start accelerator:

Apply 12 V to expansion element of hydr. cold-start accelerator. At 300 1/min there must be a timing-device travel of 1.3- 3.3 mm.

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,4 a

3. Edition

supersedes 10.83 VWW company: 087 - T

see VDT-W-460/...

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting

VE 6/10 F 2400 L 116

1.7 Load-dependent start of delivery

0 460 406 018

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,4-1,8	mm	0,75	
1.2 Supply pump pressure	1500	5,7-6,3	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without	600	26,5-27,5	cm ³ /1000 strokes	0	
charge-air pressure Full-load delivery with	1500	44,0-45,0	cm³/1000 strokes	0,75	2,5 (3,0)
charge-air pressure 1.4 Idio speed regulation	415	6,0-10,0	cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Start	100	min. 42,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2675	10,0-16,0	cm ³ /1000 strokes	0,75	

2. Test Spec	ancations	checking values in b	rackets ()			
2.1 Timing device LDA=0,75 bar	n = rev/min mm	1200	1,3)	1500 (0,9-2,3)	240 4,1-4,9(3	
2.2 Supply pump LDA=0.75 bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9			240 8,1-8	-
Overflow delivery	n = rev/min cm²/10 s	600 55-138(40-	600 55-138(40-153)		240 55-138(4	0 (0,75 bar 0-153)
2.3 Fuel deliveries		·		:	3. Dimen	for assembly
Spesd control lever	Rot. speed	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment
End stop	2850 2675 2400 1500 800 * 600	max. 4,0 35,5-37,5 33,5-34,5	(9,0-17,0) (34,2-38,8) (42,2-46,8) (31,0-37,0) (24,0-30,0)	0,75 0,75 0,30	k KF MS SVS	3,2-3,4 6,3-6,6 1,7-1,9 2,4
switch-off elektr.	400	0			AXK eXL	21,8-23,8 9,4-12,7
End stop 400 min. 2		max. 3,0 min. 20,0 max. 30,0	(4,0-12,0)	Manifold-pressu compensator str = 4,2 mm		tor stroke
2.4 Soleno⊮	max. cut-in voltag	<pre>xxx min. rated volta</pre>			1	g nut. (46)

Geschäftsbereich KH. Kundendienst. Kf2-Ausrüstung. C. 1980 by Robert Bosch GmbH. Postfach 59, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Aljemagne par Robert Bosch GmbH.

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,4 d

3. Edition

VE 6/10 F 2400 L 116-1 0 460 406 019 supersedes 10.83 company VWW engine 087 - T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Testoil-ISO 4113

Pre-stroke setting	mm			see VDT-W-460/		
1. Settings	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm ³	
1.1 Timing device travel	1500	1,4-1,8	mm	0,75	•	
1 2 Supply pump pressure	1500	5,7-6,3	bar (kgt/cm²)	0,75		
1.3 Full-load delivery without charge-air pressure	600	26,5-27,5	cm ³ /1000 strokes	• 0	:	
Full-load delivery with charge-air pressure	1500	44,0-45,0	cm ³ /1000 strokes	0,75	2,5 (3,0)	
1.4 Idle speed regulation	415	6,0-10,0	cm ³ /1000 strokes	0	2,0 (3,0)	
1.5 Start	100	min. 42,0	cm ³ /1000 strokes	0		
1.6 Full-load speed regulation	2675	10,0-16,0	cm ³ /1000 strokes	0,75		
1.71 and-dependent start of delivery						

2. Test Spec	afications	checking values in	brackets ()				
2.1 Timing device LDA=0,75 bar	uw u = len/wiu	1200 0,2-1,0(0-		1500 ,9 - 2,3)	2400 4,1-4,9(3,	8-5,2)	
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kg1/cm²)	600 3,3-3,9			2400 8,1-8,7		
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40	-153)		2400 55-138(40	(0,75 bar) -153)	
2.3 Fuel deliveries	•				3. Dimer	tor assembly and adjustment	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	mm	
End stop	2850 2675 2400 1500 800 * 600	i	(9,0-17,0) (34,2-38,8) (42,2-46,8) (31,0-37,0) (24,0-30,0)	0,75 0,75 0,75 0,75 0,30	K KF MS SVS	3,2-3,4 6,3-6,6 1,7-1,9 2,4	
switch-off mech. elektr.	2400 400	0			a XK b XL	21,8-23,8 9,4-12,7	
End stop	415 600 400 500	max. 3,0 min. 20 max. 30	(4,0-12,0)		compensa = 4,2 m Correcti	on at the	
2.4 Solenoid	max. cut-in voltage	xxx min.			adjusting nut. (46)		

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,0 i 1

2. Edition

VE 5/10 F 2250 L 133

0 460 405 031

supersede 2.83 company:VWW engine 153 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,2

± 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1-3,5	mm	0,75 bar	· ·
1 2 Supply pump pressure	1500	5,5-6,1	bar (kgf/cm²)	0,75 bar	•
1.3 Full-load delivery without	500	21,5-22,5	cm ³ /1000 strokes	0	:
charge-air pressure Full-load delivery with	1500	43,5-44,5	cm³/1000 strokes	0,75 bar	2,5 (3,0)
charge-air pressure 1 4 Idle speed regulation	375	6,0-10,0	cm ³ /1000 strokes	0	2,0 (3,0)
1 5 Start	100	min. 50,0	cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	2525	9,0-15,0	cm ³ /1000 strokes	0,75 bar	:
1.7 Load-dependent start of delivery					

		850	1500	2250
2.1 Timing device LDA:0,75 bar	uu u = tev/wiu	1,1-1,9(0,8-2,2)	(2,6-4,0)	5,4-6,2(5,1-6,5)
2.2 Supply pump LDA:0,75 bar	n = rev/min ber (kgf/cm²)	500 3,2-3,8		2250 7,3-7,9
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		2250 55-138(40-153)

	cm ³ /10 s		,			
2.3 Fuel deliveries	<u>:</u>				3. Dimen	SiONS for assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgt/cm²)	Designation	mm
End stop	2700 2525 2250 1500 * 850 500	max. 3,0 37,0-39,0 32,5-33,5	(8,0-16,0) (35,8-40,2) (41,8-46,2) (30,8-35,2) (19,0-25,0)	0,75 bar 0,75 bar	K KF MS SVS	- 5,7-6,0 1,7-1,9 4,2
switch-off elect.	400	0			A B	
Idle stop	375 400 **1125 400 500	max. 3,0 20,5-22,5 min. 18,0 max. 25,0	(4,0-12,0)		Observations Please no tions on	te instruc- sheet 2.
2.4 Solenaid	mex. cut-in voff		10 V ige 12V.			

Adjust TAS only at full LDA pressure of 0.75 bar.

- ** Adjust EGR with gauge.
- * Manifold-pressure compensator stroke = 3,6

Correction at the adjusting nut. (46)

Test Specifications Distributor-type Fuel-injection Pumps 46

WPP 001/4 VWW 1,6 W 6 1. Edition

En

Testoil-ISO 4113

VE 4/9 F 2250 R 134-4 0 460 494 137 supersedescompany: VWW engine: 086 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm see VDT-W-460/.

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,2-3,7	mm	0,75	
1 2 Supply pump pressure	1500	5,5-6,1	bar (kgf/cm²)	0,75	:
1.3 Full-load delivery without	600	22,5-23,5	cm ² /1000 strokes	0	!
charge-air pressure Full-load delivery with	1500	42,5-43,5	cm ³ /1000 strokes	0,75	2,5 (3,0)
charge-air pressure 1 4 idle speed regulation	475	6,0-10,0	cm ^{3/1000} strokes	0	2,0 (3,0)
1.5 Start	100	min. 35	cm2/1000 strokes	0	· ·
1 6 Full-load speed regulation	2525	9,0-15,0	cm-/1000 strokes	0,75	:
1.7 Load-dependent start of delivery	-			•	

2. Test Spec	ifications	checking values in brackets () .	
2.1 Timing device LDA=0,75 bar	n = revimin	1000	1500 (2,8-4,2)	2250 6,0-6,8(5,7-7,1)
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9		2250 7,4-8,0
Overflow delivery	n = rev(min cm³/10 s	600 (0 bar) 55-138(40-153)		2250 (0,75 bar 55-138(40-153)

2.3 Fuel delivenes	<u> </u>				3. Dimen	SIONS
Speed control lever	Rot speed	Fuel delivery cm3/1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment
End step	2750 2525 2250 1500 * 1000 600	max. 3,0 38,0-40,0 32,5-33,5	(8,0-16,0) (36,7-41,3) (40,7-45,3) (30,7-35,3) (20,0-26,0)	0,75 0,75 0,30	K KF MS SVS	3,2-3,4 5,7-6,0 1,2-1,4 3,2
switch-off elektr.	400	0			A B	
tdle stop ** End stop	475 1200 1125 400 500	max. 4,0 22,0-24,0 min. 21 max. 29	(4,0-12,0)		Observations Please no tions on	ote instruc- sheet 2.
2.4 Solenoid	mex. cut-m volta	xxx min.	10 V ge 12V.			

- * Manifold-pressure compensator stroke = 4,0
- ** Setting point for EGR

Pull control lever toward full load untill gauge fits over driver and housing cover web. Measure delivery.

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,4 1

1. Edition

VE 6/10 F 2400 L 144

0 460 406 029

company VWW engme: 087 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump To.. Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,2-1,6	WE	0,75 bar	
1.2 Supply pump pressure	1500	5,7-6,3	bar (kgf/cm²)	0,75 "	
1.3 Full-load delivery without	600	25,5-26,5	cm ³ /1000 strokes	0 "	
charge-air pressure Full-load delivery with	1500	44,0-45,0	cm ³ /1000 strokes	0,75 "	2,5 (3,0)
charge-air pressure 1.4 Idle speed regulation	375	6,0-10,0	cm ³ /1000 strokes	0 "	2,0 (3,0)
1.5 Start	100	min. 42	cm ³ /1000 strokes	0 "	į
1.6 Full-load speed regulation	2600	10,0-16,0	cm ³ /1000 strokes	0,75 "	
1.7 Load-dependent start of delivery	-			1	

2. Test Spe	cifications	checking values in brackets ()		
2.1 Timing device LDA = 0,75 b	glum u = ten\wiu	1500 1500 (0,7-2,1) (*) 3	2000 20 3,6-4,4(3,3-4,7)		400 (5,3-6,7)
2.2 Supply pump LDA = 0,75 b	n = rev/min	600 *1500 3,3-3,9 6,8-7,4	2400 8,1-8,7		
Overflow delivery	n = rev/min cm ³ /10 s	600 (0 bar) 55-138(40-153)	2400 (0,75 b 55-138(40-153)	ar)	
2.3 Fuel deliveries		<u></u>	:	3. Dimen	for assembly
Speed control lever	Rot. speed	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	2750 2600 2400	max. 4,0 (9,0-17 35,0-37,0(33,7-38	3,3) 0,75	K KF	3,2-3,4 6,3-6,6
	1500 **800 600	(42,2-46 32,5-33,5(30,7-35 (23,7-26	5,8) 0,75 5,3) 0,3	MS SVS	1,7-1,9 max.6,0
	i : :			**LDA-Hub	5,3
switch-off elect.	400	0		A B	
Idle stop	375 450	max. 3,0 (4,0-12	,0)	Observations	<u> </u>
End stop	400 500	min. 20 max. 30		Please not	te instruc- sheet 2.
2.4 Solenoid	max. cut-in volta	⇒ xxx min. 10 V			

www.xxxrated voltage 12V.

* Test hydr. cold-start accelerator:
At the designated points do not apply voltage to magnet of hydr. cold-start accelerator.

1500 1/min 3,0 - 4,0 (2,8 - 4,2) 2000 1/min 4,9 - 6,1 (4,8 - 6,2) Test Specifications
Distributor-type
Fuel-injection Pumps

WPP 001/4 VWW 2,4 1 1 1 Edition

VE 6/10 F 2400 L 144-1

0 460 406 030

supersedes

company **VWW**

engine

087 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings			e-air press (f/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,2-1,6	mm	0,75	bar	
1.2 Supply pump pressure	1500	5,7-6,3	bar (kgf/cm²)	0,75	u	
1.3 Full-load dalivery without	600	25,5-26,5	cm ³ /1000 strokes	0	11	
charge-air pressure Full-load delivery with	1500	44,0-45,0	cm²/1 000 strokes	0,75	tt.	2,5 (3,0)
charge-air pressure 1.4 Idle speed regulation	375	6,0-10,0	cm ³ /1000 strokes	0	11	2,0 (3,0)
1.5 Start	100	min. 42	cm ³ /1000 strokes	0	41	
1.6 Full-load speed regulation	2600	10,0-16,0	cm ³ /1000 strok es	0,75	11	
1.7 Load-dependent start of delivery	•	•				

2. Test Spec	cifications	checking values if	n brackets	()		
2.1 Timing device LDA = 0,75 ba	n = rev/min 3]?mm	1500 (0,7-2,1)	1500 (*)	3,6-4	2000 ,4(3,3-4,	2000 (*)	2400 5,6-6,4(5,3-6,7)
2.2 Supply pump LDA = 0,75 bi	n = rev/min 375ar (kgf/cm²)	600 3,3-3,9	*1500 6,8-7	,4	2400 8,1-8,7		
Overflow delivery	n = rev/min cm ³ /10 s	600 (0 55-138(40			2400 (0, 55-138(4		
2.3 Fuel delivenes		<u>:</u>				 3	. Dimensions

2.3 Fuel delivenes	3. Dimensions for assembly				
Speed control lever	Rot, speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	: Designation	and adjustment mm
End stop	2750 2600 2400 1500 **800 600	max. 4,0 (9,0-17,0) 35,0-37,0(33,7-38,3) (42,2-46,8) 32,5-33,5(30,7-35,3) (23,7-28,3)	0,75 0,75 0,75 0,75 0,3 0	K KF MS SVS	3,2-3,4 6,3-6,6 1,7-1,9 max.6,0
				: **LDA-Hub	5,3
switch-off mech. elektr.	2400 400	0		8	
End stop	375 450 400 500	(4,0-12,0) max. 3,0 min. 20 max. 30		Please not	te instruc- sheet 2.
2.4 Solenoid	max. cut-in vofit	xxx min. 10 V xrated voltage 12V.			

* Test hydr. cold-start accelerator: At the designated points do not apply voltage to magnet of hydr. cold-start accelerator.

1500 1/min 3,0 - 4,0 (2,8 - 4,2) 2000 1/min 4,9 - 6,1 (4,8 - 6,2)

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,4 1 3

1. Edition

VE 6/10 F 2400 L 146 0 460 406 033

supersedes VWW company

engine: 087

Overflow temperature 45° C

All test specifications are valid only for Bosch Fusi-rijection Pump Test Senches and Testers

Test instructions and Test Equipment

Pre-stroke setting

see VDT-W-4604 .

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,8-3,2	mm		
1 2 Supply pump pressure	1500	5,2-5,8	ber (kgi/cm²)		
1.3 Full-load delivery without	1500	28,5-29,5	cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
1.4 Idle speed regulation	375	6,0-10,0	cm ³ /1000 strak a s		2,0 (3,0)
1.5 Start	-100	min. 35	cm³/1000 strokes	İ	
1.6 Full-load speed regulation	2700	6,0-12,0	cm ³ /1000 strok es		!
1.7 Load-dependent start of delivery	_			!	

2. Test Spe	cifications	checking values in brack	ets ()		
2.1 Timing device	ww. u = usalwiu	750 0,2-1,0(0-1,3)	750 (*)	1500 (2,3-3,7)	1500 (*)	2400 5,7-6,5(5,4-6,8)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,8-3,4	*1500 6,3-6,9	7	2400 ,7 - 8,3	
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153))	55-1	2400 38(40-	153)
						0 0:

Speed control lever	Rot. speed	Fuel delivery cm ³ /1000 strokes	Charge-air press
End slop	2825 2700 2400 1500 750	max. 3,0 (5,0-13,0) 22,0-24,0(20,7-25,3) (26,7-31,3) 26,0-29,0(24,5-30,5)	
switch-off elect.	400	0	
Idle stop	375 600	(4,0-12,0) max. 4,0	
End stop	400 500	min. 20 max. 25	
2.4 Solenoid	man. cut-in volt	xxx min. 10 V xrated voltage 12V.	

3. Dimens	ions for assembly and adjustment mm
К	3,2-3,4
KF	6,4-6,7
MS	1,5-1,7
svs	3,6
A B	
Observations	
Please not tions on s	e instruc- heet 2.

* Test hydr. cold-start accelerator:
At the designated points do not apply voltage to magnet of hydr. cold-start accelerator.
750 1/min 1,2 - 2,4 (1,1 - 2,5)
1500 1/min 3,7 - 4,7 (3,5 - 4,9)

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,4 1 2 1. Edition

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VE 6/10 F 2400 L 146-1

supersed

s – VWW

0 460 406 034

company: VWW engine: 087

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/.

mm			See AD1-44-4901	
Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1500	2,8-3,2	mm	4	i
1500	5,2-5,8	bar (kgt/cm²)	:	
1500	28,5-29,5	cm ³ /1000 strokes		2,5 (3,0)
-	-	cm ³ /1000 strokes		
375	6,0-10,0	cm ³ /1000 strokes		2,0 (3,0)
100	min. 35	cm ³ /1000 strokes		* *
2700	6,0-12,0	cm ³ /1000 strokes		
-	:		:	•
	1500 1500 1500 1500 - 375 100 2700	Rot speed revimin Settings 1500 2,8-3,2 1500 5,2-5,8 1500 28,5-29,5 - - 375 6,0-10,0 100 min. 35 2700 6,0-12,0	Rot. speed rev/min Settings	Rot. speed rev/min Settings Charge-air press. bar (kgf/cm²) 1500 2,8-3,2 mm 1500 5,2-5,8 bar (kgf/cm²) 1500 28,5-29,5 cm³/1000 strokes - 375 100 100 2700 2700 2700 2700 2700 2700 2700 2700 2700

2. Test Spe	cifications	checking values in bracke	ts ()		
2.1 Timing device	n = rev/min mm	750 0,2-1,0(0-1,3)	750 (*)	1500 (2,3-3,7)	1500 (*)	2400 5,7-6,5(5,4-6,8)
2.2 Supply pump	n = rev/min ber (kgf/cm²)		*1500 6,3-6,9	7	2400 ,7 - 8,3	
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		55-1	2400 38(40-	153)
	<u> </u>	<u> </u>				O Dimensione

				3. Dimer	nsions
2.3 Fuel deliveries Speed control lever	Rot. speed	Fuel delivery	Charge air press	Designation	for assembly and adjustment mm
	rev/min		Dar (kg)/Cit-7		
End stop	2825	max. 3,0 (5,0-13,0)		K	3,2-3,4
	2700 2400	22,0-24,0(20,7-25,3)		KF	6,4-6,7
	1500	(26,7-31,3)		NF.	Į ,
	750	26,0-29,0(24,5-30,5)	!	MS	1,5-1,7
	,00	20,0 20,0 (21,0 10,7)		sv\$	3,6
	:	;		•	:
			į		!
	1			•	
switch-off				A	į
switch-off mech	2400	0		8	
elektr.	400	U			
Idle stop	375	(4,0-12,0)		Observations	
idle 3/ob	600	max. 4,0			
	000	max. 4,0		Dlesse -	
End stop	400	min. 20		1	ote instruc- sheet 2.
Eria Scop	500	max. 25		E TOILS OIL	SHEEL Z.
•	1				
	mex. cut in vot	xxx min. 10 V			
2.4 Sciencid	XXXXXXXX	xrated voltage 12V.			

* Test hydr. cold-start accelerator:
At the designated points do not apply voltage to magnet of hydr. cold-start accelerator.
750 1/min 1,2 - 2,4 (1,1 - 2,5)
1500 1/min 3,7 - 4,7 (3,5 - 4,9)

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WPP 001/4 RAB 9,7 & 1

1. Edition

En

PES 6 A 95 D 410 RS 2108 RSV 450-1000 A 1 B 2004 DL

Komb.-Nr. 0 400 876 266

supersedes Raba

engine =

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,65-1,85)

mm (from BDC)

Rotational	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm·/100 strokes	cm ³ / 100 strokes 4	mm 2	cm / 100 strokes	mm 6
1000	11,1+0,1	10,8 - 11,0	0,3(0,6)]
450	5,9-6,1	1,1 - 1,7	0,3(0,5)			
		_				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Control rod travel mm	rev/min Control rod travel mm rev/min 3	interme	diate rated	speed	Control- lever deflection in degrees 7	Lowe rev/min 8	rated speed Control rod travel mm	(3) To rev/min 10	rque control Control rod travel mm 11
loose	800 x = 4	0,3-1,0	-	-	-	ca. 34	450 100 450	5,5 min.19,0 5,9-6,1	1000 800 500	11,1-11,2 12,5-12,7 12,6-12,8
ca. 59	4,0	1040-1050 1085-1115 0,3-1,7						05= 2,0 max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ill-load stop	6 Rotational- speed limitat	11321	el delivery aractenstics	Starting f	uel delivery 5	4a Idi	e stop
Test oil te rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm» 1000 strokes 7	revimin 8	travel mm
1000	107,5-109,5 (105,5-111,5)	1040-1050*	800 500	124,5-129,0 (122,5-131,0) 125,5-129,5 (123,5-131,5)	-	-	450	5,9-6,1

Checking values in brackets

1 mm less control rod travel than col. 2

12.83



WPP 001/4 TOP 19,0 a 2. Edition

PE 12 A 85 D 610 RS 2141

RSV 200-1100 A1B 253 DL

supersedes 6.83

engine

Torpedo T 519

Komb.-Nr. 0 400 670 005

1-12- 4- 9 - 2 - 11- 6 - 7 - 3 - 10- 5 - 8 0-45-60-105-120-165-180-225-240-285-300-345° ± 0,5° (± 0,75°) All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,15-2,25 (2,10-2,30)

mm (from BDC) RW = 9.0-12.0 mm

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm ¹ /100 strakes 3	Cifference cm ² / 100 strokes 4	Control rod travel :nm 2	Fuel delivery cm /100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	12,4+0,1	8,7-8,8	0,3(0,45)			
500	12,8+0,1	8,2-8,4				

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

	r rated speed Control rod travel mm	Control rod travel mm rev/min	Interme	ediate rate	d speed	Control lever deflection in degrees 7	Lower rev/min 8	raled speed Control rod travel mm 9	((3)	rque control Control rod travel mm
loose	800 X =	0,3-1,0 6,0	-	. •	•	ca.24	200 100 200	5,5 min.19,0 5,9-6,2	1000 500 800	12,4-12,5 12,8-12,9 12,7-12,9
ca.55	11,4 4,0 1250	1040-1050 1155-1185 0,3-1,7					420-480			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(20)	ul-load stop	6 Rotational- speed limitat	1 2/1	iel delivery paracteristics	Starting f	uel delivery 5	43 idl	e stop 1 Control rod
Test oil to rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to 1 rev/min 3	reviniin 4	cm ² /1000 strokes	rev/min	cm=/1000 strokes 7	rev/min	travel mm 9
1000	86,5-87,5 (84,5-89,5)	1040-1050*	500 700	82,0-84,0 (80,0-86,0) 87,5-90,5 (85,0-93,0)	-	-	-	-

Checking values in brackets

1 mm less control rod travel than col 2

12.83

WPP 001/4 MB 5,7 q 2

11. Edition

PES 6 A 90 D 410 RS 2293

RSV 350-1300 A 0 B 783 L

supersedr > 3.83

Daimler-Benz company

OM 352 A

engine 110 kW (150 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Fort closing at prestroke

Testoil-ISO 411

(2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm3/ 100 strokes	Control rod travel	Fuel delivery cm ⁹ 100 strokes	Spring pre-tensioning storque control valve)
rev/min 1	2	3	4	2	3	6
1300	11,4-0,1	7,7-7,7	0,3(0,45)			
350	7,3-7,5	1,0-1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

11 1 7 7 7	r rated spec Control roo travet mm	ed rev/min I Control rod travel mm rev/min 3	Interme	diate rated	i speed	Control lever deflection in degrees 7	Lowe rev.min 8	rated speed Control rost travel mm 9	revemin 10	rque control Control rod travet mm 11
loose	800 x =	0,3-1,0 3,5	-	-	-	loose	350 100 350	7,4 min.19,0 7,3-7,5	1300 800 1050	11,4-11,5 11,7-11,8 11,5-11,7
ca.62	10,0 4,0 1600	1340-1350 1460-1490 0,3-1,7					570-	630=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(49)	on-1000 strokes	Rotational- speed limitat changed to) rev/min	11.3211	el delivery aracteristics cm³r1000 strokes	Starting f Idle rev/min 6	uel delivery 5 cm ⁹ /1000 strokes	rev/min	Control rod travel mm
LDA 1300 LDA 800	0,7 bar 75,5.76,5 (73,5-78,5) 0,7 bar 67,0-69,0 (64,5-71,5)	1340-1350*	500 LDA 500	0,7 bar 62,0-64,0 (59,5-66,5) 0 bar 50,0-52,0 (47,5-54,5)	100	78,0-88,0 (75,0-91,0 = 15,1 - 15,5mm RV	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.83



D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 q 2

- 2 -

500 Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A RS 2293 +RSVAOB 783 L	3 0,7	0 0,39 0,28	11,7-11,8 10,7-10,8 11,4-11,5 10,9-11,1

Notes.

(1) when n =

rev/min and gauge pressure =

par (= maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at 0,40 - 0,50 bar Unlocking at 0,15 - 0,25 bar

Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 q

Edition 3.

En

EP/RSV 350-1400 AO B1080DL(1) PES 6 A 90 D 410 RS 2293

RS2293

350-1425 A2 B1028DL(2)

350-1400 AO B 745L (3)

RS2293 RS2293Z

350-1400 AO B 745L (4)

supersedes4.78

company Daimler-Benz

OM352 (A)

92kW (125PS - 1-2)

115kW (156PS - 3) 123kW (168PS - 4)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25

Rotational speed	Control rod travel	(2,10-2,30) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev min mm	mm 2	cm 1100 strokes	cm ² / 100 strokes 4	mm 2	cm ¹ /100 strokes 3	mm 6
1000	9	4,5 - 5,0	0,3(0,45)			
	6 12	1,8 - 2,6 7,3 - 8,2				
200	9	2,0 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..1080DL (1)

Upper Degree of	rated speed	Control rod	[Degree of]			Degree of Control rod			3 Torque cont	
deflection of control lever	rev/min	travel mm	deflection of control lever	rev/min	travel mm	deflection of control lever	rev/min	mm 9	rev/ຕາກ 10	mm 11
1	2400	16.0	-	<u> </u>	1	ca.20	350	9,2		
ca.67	1400 1450 1500	16,0 11,4 5,5	withou!	t auxo	liary spr		100 350	19 - 21 8,9-9,5		0 0,2-0,3
(5)	1470 1520 1640	3,0-10,4 3,8-6,3 0,3-1,0	1		ry spring		500 700	3,5-6,2		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop				Starting	fuel deliver	γ	(5a) Idle stop	
Test oil temp rev/min 1	0. 40°C (104°F) cm³/1000 strokes 2	Note changed to rev/min	rev/min	cm³/1000 strakes 5	rev/min	202/1000 7 mm		rev/min	travel mm 9
(1) 1400	63,0 - 64,0 (61,0 - 66,0)	1450-1460*	600	51,0 - 53,0 (49,0 - 55,0)	100 1520	14,7 -1540	-15,3 = 4,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

B. Gov	ernor	Settings							185,7q 10281	
Degree of deflection of control lever	rated speed	Control rod travel mm	Intermediate Degree of detlection of control lever	rated spe revirnin 5	ed Control rod travel mm 6	Degree of deflection of control lever	rated spe revimin 8	control red travel mm	revimin	que control Control rod travel mm
ca.60	1425 1500 1560	16,0 11,5 6,5	without	auxi	liary spr	ca.20 ing	350 200 350	7,5 19 - 21 7,2-7,8	1400 800	0
5	1500 1600 1760	10,0-12,2 3,8-6,0 0,3-1,0	with au	ıxilia	ry spring		600 780	1,0-4,5	450	0,4-0,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-io	ad stop (6) Rotational- speed limitat			el delivery aracteristics	Starting	tuel delivery	Sa) idle	Control rod
Test oil tem revimin	p 40°C (104°F) cm²/1000 strokes 2	Note changed to revimin	rev/miñ	cm /1000 strokes	rev/min	ጸሟ	rev/min 8	travel mm 9
(2) 1400	60,0 - 61,0 (58,0 - 63,0)	1450-1460*	500	46,0 - 48,0 (44,0 - 50,0)	100	14,7-15,3		
			(6a)					_

Checking values in brackets

* 1 mm less control rod travel than col 2

745L (3 - 4)

B. Governor Settings

1 Upper Degree of deflection of control lever	rated speed	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	4 Lowe Degree of deflection of control lever 7	rev/min	control rod travel mm	レン	Control rod travel mm
ca.63	1400	16,0				ca.29	350	7,9		•
	1500 1580	9,8 3,8	withou	ıt aux	oliary sp	ring	200 350	19 - 21 7,6-8,2		
ca.61	1400 1525	ca. 11,9 ca. 4,6			ary sprin		500 700	3,1-5,5		
(5)	1650	0,3-1,0	with a	uxiii	ary spilli	<u> </u>	<u> </u>	<u> </u>	<u> </u>	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-le	oad stop	6 Rotational- speed limitat	Hotational 1(3a)		Starting Idle	tuel delivery	(5a) idle stop	
Test oil ten	cm ³ /1000 strokes	Note changed to rey/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/ 1000 strokes 7		travel mm
(3) 1380	74,5 - 75,5 (72,5 - 77,5)	1420-1430*			100	78,0-88,0 75,0-91,0)	350	7,9
(4) 1380	75,5 - 76,5 (73,5 - 78,5)	1420-1430*						

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WPP CO1/4 MB 5,7 q 8

2. Edition

En

PES 6 A 90 D 410 RS 2293 Komb.-Nr. 0 400 876 316 RSV 350-1200 A0B 1101-1 L

Superseder +83 Daimler-Benz OM 352 angine OM (95 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2, 3-2,25 (2,10-2,30)

mm (from BD&W = 9,0-12,0 mm

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque control valve)
rev/min		cm=/100 strokes	cm ^{-/} 100 strokes 4	mm 2	cm~100 strokes 3	6
1200	8,4-8,5	4,5-4,6	0,3(0,45)			
350	7,1-7,3	0,8-1,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed	rev/min Control rod	Intermediate rated speed			Control Control roa			Torque control		
Degree of deflection of control lever	travel mm	travel mm rev/min			6	lever deflection in degrees	rev:min	trave! mm		travel mm 11	
1 1oose	800	0,3-1,7	-	5	6	-	350	7,2	1200	8,4-8,5	
	x =	4,0					350	7,1-7,3	600 800	9,8-9,9 9,5-9,7 8,9-9,2	
ca.65	7,4 4,0 1400	1225-1235 1290-1320 -1,7					475-535	= 2,0	1000	0,3-3,2	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ill-load stop	6 Rotational- speed limitat		iel delivery laracteristics	Starting f	uel delivery 5	4a) Idle stop		
Test on to	cm-/1000 strokes	Note changed to rev/min	rev/min	cm /1900 strokes 5	rev/min	cm·1000 strokes 7	revimin 8	travel mm	
1200	45,0-46,0 (43,0-48,0)	1225 - 1235*	600	45,0-47,0 (43,0-49,0)	100	78,0-88,0 (75,0-91,0 = 14,9 - 15,3 mm RW) -	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.83

BOSCH

Geschaftsbereich KH. Kundendienst: Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50: D-7000 Stuttgart t: Printed in the Federal Republic of Germany imprime en Republique Federale d Alterhagne par Robert Bosch GmbH.

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WPP 001/4 MB 5,7 q 3

7. Edition

En

PES 6A 90D 410RS 2293

RSV 350-1300A0B1105DL

Komb.-Nr. 0 400 876 260

supersedes

6.83 Daimler-Benz

company OM

OM 352

92 kW(125PS)(1)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) 2,15-2,25

mm (from BDC)

Rotational	Control red	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre tensioning -
speed	travel	, der demeny	l cm3	travel		torque control valve)
revimin 1	mm 2	cm³100 strokes 3	100 strokes	00 m 2	cm 3 ,100 strokes	p mm
1300	9,5-9,6	6,2-6,3	0,3(0,45)			
350	7,4-7,6	1,2-1,6	0,2(0,45)			
			-			

B. Governor Settings

Testoil-ISO 4113

1	rrated speed		Interme	diate rated	speed	(4)	Lower	rated speed	3 Torque control		
Degree of deflection of control	Control rod travel	Control rod travel	 			Control lever deflection	rey/min	Control red travei mm	rev. min	Control red travel mm	
lever		3	.1	5	6 6	in degrees 7	ε	<u> </u>	10	11	
loose	800	0,3 - 1,0	-	-	-	ca.28	350	5,9	1300	9,5- 9,6	
	Х	= 6,0	;				100 350	min.19,0 7,4-7,6	800	10,2-10,4	
ca.68	8,5 4,0 1550	1340-1350 1430-1460 0,3-1,7		_			470-530 700	= 2,0 max.1,0	500	10,3-10,4	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	Speed limit.		Fuel delivery characteristics		Starting f	uel delivery 5	4a Idle stop		
Test out to	emp. 40 C (104 F) cm3 (000 strokes) 2	Note changed to a review min.	rev/min	cm 3 1000 strukes 5	ler unu	cm#1000 strokes 7	rezimin 8	Control rod travel mm 9	
1300	62,5 - 63,5 (60,5 - 65,5)	1340-1350*	800 500	60,0-62,0 (58,0-64,0) 54,0-56,0 (52,0-58,0)	100	80,0-90,0 13,7-14,3 mm RW	-	-	

Checking values in brackets

* timmle; a control rod travel than col. 2

BOSCH

Geschaftsbereich KH, Nun lendlanst Mit Ausrustung. 1980 by Robert Bosch Gribh (Postfach 50, 0-7000 Stuffe of 1, Profedio the Federal Republic of Geometry, 1982 maj en Republique Federale d'Allemagne par Rubert Bosch Gmbri.

WPP 001/4 MB 5,7 q 6 3. Edition

En

PES 6 A 90 D 410 RS 2293-1 Komb.-Nr. 0 400 876 312

RSV 350-1400 AOB 745-1L

supersedes 8.82

company Daimler-Benz

OM 352 A engine

115 kW (156 PS)

All test specifications are valid for Bosch Fuel Injection Pump. Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 4113

2,15-2,25 (2,10-2,30)

mm (from BDC)

577 57 5 577 5 57		(2,10-2,30)				C-+		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel deliziery	Spring pre-tensioning (torque-control valve)		
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm		
1	2	3	4	2	3	6		
1380	11,9+0,	7,6-7,7	0,3(0,45					
350	7,8-8,	0,9-1,5	0,2(0,4)					
					Ì			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed revimin	Control rod travel	Intermediate Degree of deflection of control lever	rated spe	Control rod travel mm	Degree of deflection of control lever	rated spe revimin 8	control rod travel mm	(3) Tar	cue control Control rod travel mm.
loose	800 X :	0,3-1,0	-	-	-	ca. 29	350 100 350	7,4 min.19,0 7,8-8,0	-	-
ca. 61		1420-1430 1530-1560 0,3-1,7					1	10= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full+c	oad stop	6 Rotational- speed limitat	1(~~)	il delivery tracteristics	Starting Idle	fuel delivery	5a idle stop		
Test of tem rev/min 1	cm ³ /1000 strokes	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ² /1000 strok es 7	rev/min 8	Control rod travel mm 9	
1380	75,5-76,5 (73,5-78,5)	1420-1430*	600	63,0-66,0 (61,0-68,0)	100	88,0-98,0 (85,0-101,0 = 16,3-16, mm RW	0	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.83

WPP 001/4 MB 3,8 g 2

4. Edition

PES 4 A 90 D 410 RS 2294

ROV 300-1425 AB 740 L

Komb.-Nr. 0 400 844 047

Festoil-ISO 4113

companyDaimler-Benz engine OM 314 62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(2.1 - 2.3)	mm (from BDC)			- F
Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strok es 3	mm 6
1400	9,7-9,8	6,3 - 6,4	0,3(0,45			
300	7,5-7,7	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings (1994)

Upper rated	speed			Intermediate	rated spe	se d	Lower raters	speed	la	Sliding.sl	eeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	(3) (28)	Degree of deflection of control layer	rev/min	Control rod travel mm 4	Degree of deflection of control laver	rev/min	Control rod travel mm 3	rev/min	mm 11.
max.	1420	15,2-1	7,8	-	-	-	ca.14	100	min.9,1		0,7 - 1,0 3,2 - 3,6
ca.61	8,7	1455-14 1550-1	4 65 58 0					300	7,5-7,7		5,2-5,0 5,5-5,7 8,1
	1700	0 -	1,0				370-520				, ,,,
į							39				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil terr		Rotational-speed 20 limitation intermediate speed	Fuel deliv high idle s	ery characteristics 58 peed 50	Starting lidle switching	•	Torque-control 5 travel Control ro travel	
Lea/Will	. •	ten/wiu	rev/min	cm ² /1000 strokes	rev/min	XPPXPXPXPXXXXXXX	rev/min	mm 9
1	2	3	4	5	6	7	-	
1400	62,5 - 63,5 (60,5 - 65,5)	1455-14 65 *	-	-	100	13,7-14,3 mm RW	-	-

Checking values in brackets

1 mm less control rod travel than col. 2

12.83

WPP 001/4

3. Edition

PE 6 A 95 D 410 LS 2450 RQ..929,930,984D,986D,987D Subersedes PE 8 A 95 D 410 LS 2451 RQV..898,931,973,974,975,976,983D, K H D company 988D,990D,996,999,1006D,1009, F 6 L 413 F/ FW PE 10A 95D610/4 LS 2452 engine 1014,1016,1020,1021,1026D 8 PE 12A 95D 610 LS 2453 10 EP/RSV..1002D, 1084 Instructions P. 2 12 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1

estoil-ISO 4113

Rotational Speed	Control rod travel	Fuel delivery	Ditterence	Control rod travel	Fuel delivery	Spring pre-tensioning diction control valver
revinin	mm 2	cm¥100 strokes 3	cm ³ 100 strokes	min 2	cm 3 19∂ strckes 3	rum; ti
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				
			i i			
					}	

Adjust the fuel delivery from each outlet according to the values in \Box

B. Governor Settings

(1) Uppe	or rated spe		Interr	nediate ra	ted speed	(4)				(3) Lorque control		
Degree of deflection of control lever	Control ro travel mim	d Control rod travel mm revimo	1		6	Control lever detection in degrees	resemin.	Control rod travel mm	10	Control rod travel mm 1.1		
	See	pige 3-8										
(2a)												

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

4	att load step	Speed limitat Co ch		iel delivery aracteristics	Starting fi	uet delivery 5	(4a) Idle stop	
	emp. 40 C (104 F) cm3 1000 strokes 2	Note changed to si revimin 3	revious	cm 3 1000 Strokes	rev/min	cm#.1000 StrokeS	rev:ffiire	Control rod travel mm 9
S	ee ;age 9 - 22							

Checking values in brackets

* 1 mm less cultiful rod travel than col. 2

11.83

Geschaftsbereich Krit Kundendienst. Klz Ausrustung. 1980 by Robert Bosch Gindhil Postfach 50: D-7000 Stuttgort 1. Printed in the Federal Reports (i.d. German). Imprime en Republition Foundreid Allemagne par Robert Busch GmpH.

INSTRUCTIONS

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2. Cam sequence and angular cam spacing

3. Instructions for testing

to Section B:

Torque control dimension a = .. -section C, column 8 as required for trials no. for pre-adjustment. Final dimension to be set according to fuel-delivery characteristics in Section C, column 4-5. Further instructions for trials no. will follow on a separate information sheet.

to Section C:

If supplied, the control-rod stop with RQV governors must be set with a torque control of n= 600/min.

B. Governor Settings

RQ..

	of slider		Fuil-load	speed 189				idie spe			citications	Torque C	Omroi
	_		Setting p	-	Test spe	cification Control		Setting (Cantrai	resispe	cifications Control rod		Control rod
	Control ro	a		Control rod travel		travei	1700		roo traver		travei		travel
ו טינעוו) י	travel mm		rev.min		rev/min			rev:min		revimin		rev/min	mm 12
;	2		3	4	5	6		7	8	9	:0	11	12
300	1325	AB 92	9L, 93	30L									
50	15,6-	16.0	650	16,0	1350	15,6-	-16,0	580	0		5,4-8,1	-	_
l			i	1	1400	5,0-	-12,2		i		4,4-6,5		
]					1440	0 -	- 7,0	i			1,2-3,5	į	
ļ			İ		1500		- 1,5			480	. 0		;
ļ											1		}
			! !			<u> </u>		<u> </u>			<u> </u>		1 mm less contri
flyweic	ontroi trav	oly gimei	nsion a -	-	mm		s	peed regu	lation At				rod trav
300/1	(250 A	B 929	L										
550	15,6-	16.0	650	16,0	1270	15.6	-16,0	580	0	200	6,3-8,1	-	-
	:	,_	. 556	,	1300	10.0	-14.8		1		4,2-6,2		
					1350				-	400	0,8-3,2		
	!			ì	1420					480	0		
	J 1						- , -						
					<u>!</u>				<u> </u>				<u> </u>
orque c	ontroi tra	vei		-	mm		,	Speed regu	uation A	t			f mm less conti rod trav
	1250 A			7DL									
650	15,6-	16.4	650	16.0	1290	13.	0-15,	4 570	0	200	6,5-8,1	750	15,8-16,0
000	13,0	10,.			1320	6.	0-13,	7		350	2,8-5,0	000	15,3-15,6
	!			i	1340) - 1Ć)	-	410	0,6-3,2	900	15,5-15,0
	:				1420		0	: 1		470	0	1	Ì
				Ì		1	_	İ					
			1	ī	1	1						i	
				0.2									tinm ession
	control to		ension a	0,2	mm			Speed reg	pulation .	At			• nm ession ing fra
3007	125017	AB9861		· · · · · · · · · · · · · · · · · · ·	· · · · · ·		0-15				6.1-8.2	800	r ng tra
	125017			· · · · · · · · · · · · · · · · · · ·	1300	11,	,0-15, 4-12	,0 660		200	6,1-8,2	i	15,6-15,
3007	125017	AB9861		· · · · · · · · · · · · · · · · · · ·	1300 1320	11,	4-12	,0 660 ,5		200 300	4,0-6,0		15,6-15,
3007	125017	AB9861		· · · · · · · · · · · · · · · · · · ·	1300 1320 1340	11,	,4-12,) - 9,	,0 660 ,5		200 300 410	4,0-6,0	i	15,6-15,
3007	125017	AB9861		· · · · · · · · · · · · · · · · · · ·	1300 1320	11,	4-12	,0 660 ,5		200 300	4,0-6,0	i	15,6-15,
3007	125017	AB9861		· · · · · · · · · · · · · · · · · · ·	1300 1320 1340	11,	,4-12,) - 9,	,0 660 ,5		200 300 410	4,0-6,0	i	15,6-15,
30'07' 650	15,6	AB9861 -16,4		16,0	1300 1320 1340 1420	11,	,4-12,) - 9,	,0 660 ,5		200 300 410	4,0-6,0	i	15,6-15, 15,0-15,
30°00″/	125017	-16,4	650	16,0	1300 1320 1340 1420	11,	,4-12,) - 9,	,0 660 ,5	0	200 300 410 560	4,0-6,0	i	15,6-15,
30°00″/	15,6	-16,4	650	16,0	1300 1320 1340 1420	11,	,4-12,) - 9,	,0 660 ,5 ,6	0	200 300 410 560	4,0-6,0	i	15,6-15, 15,0-15,
30°00″/	15,6	-16,4	650	16,0	1300 1320 1340 1420	11,	,4-12,) - 9,	,0 660 ,5 ,6	0	200 300 410 560	4,0-6,0	i	15,6-15, 15,0-15,
30°00″/	15,6	-16,4	650	16,0	1300 1320 1340 1420	11,	,4-12,) - 9,	,0 660 ,5 ,6	0	200 300 410 560	4,0-6,0	i	15,6-15, 15,0-15,
30°00″/	15,6	-16,4	650	16,0	1300 1320 1340 1420	11,	,4-12,) - 9,	,0 660 ,5 ,6	0	200 300 410 560	4,0-6,0	i	15,6-15, 15,0-15,
30°00″/	15,6	-16,4	650	16,0	1300 1320 1340 1420	11,	,4-12,) - 9,	,0 660 ,5 ,6	0	200 300 410 560	4,0-6,0	i	15,6-15, 15,0-15,
30°00″/	15,6	-16,4	650	16,0	1300 1320 1340 1420	11,	,4-12,) - 9,	,0 660 ,5 ,6	0	200 300 410 560	4,0-6,0	i	15,6-15, 15,0-15,

. Upper rated	pper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque·c	ontroi travel mm	
1	2	3	4	5	6	7	8	9	10	11	

RQV

300-1325 AB 898L

ca. 68	1350 1430 1520 1600	8,3-13,0	-	-	ca.12	300	7,5-9,0 4,9-7,1 2,7-4,2		0,3-1,2 3,6-4,1 8,2
								-	-

300-1250 AB 898L

14	300 14,5-17,6 380 6,8-12,4 450 0 - 7,2 540 0	-	-	-	,	300	7,3-9,0 4,9-7,1 2,3-4,8		0,3-1,3 3,4-4,2 8,2
								-	-

300-1150 AB 898L

ca.68		15,0-18,0 8,2-13,6 0 - 7,3	-	-	-	ca.12	450	7,3-9,0 2,7-4,1 0,7-1,8 -		
	1370						800	0	-	_

300-1075 AB 898L

12	160 15,0-18,0 240 8,0-13,2 320 0 - 7,2	-	•	-	ca.12	200 300 500 710	7,5-9,0 5,1-7,0 1,1-2,4	700	0,3-1,2 4,0-4,5 8,3
								-	-

300/725-1075 AB 931L

ca.68	1075 1100 1160 1220	15,0-17,3 11,0-15,4 0 - 7,4 0	ca.48	700 800 900 950		140 300 450 700 830	6,8-8,2 4,7-6,1 3,6-4,0 1,7-3,9	400 650	0,7-0,8 1,9-2,1 1,9-2,6 4,6-5,2 8,5
		•						-	-

						1			i	
Upper rated :	speed		Intermediate	rated spe	eed	Lower rated	speed	•	Sliding sl	eeve travel
Degree of deflection of control	!	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control lever	rev/min	travel	Torque-c	ontrol travel
lever	rev/min	i ww	lever	rev/min	mm	IEAEL		_	1	
11	2	3	4	5	6	7	8	9	10	111

300-800/100 AB 973DL

Torque control travel a = 0,7 mm

ca. 50 1180 1250 1300 1380	0 - 7,6	ca. 27	600 700 840 880	11,8-14,7 7,6-10,3 0 - 2,4 0	Ì	150 250 420 530	8,4-11,5 5,7-8,8 0 - 3 0	600	0,5-1,2 3,2-3,6 7,4-7,6 8,3
								650 400	0 0,7

300-1325 AB 974 L

ca.	66	1325 1400 1480 1560	15,0-17,8 8,3-12,9 0 ~ 6,8 0	-	-	-	ca. 10	300 450	2,7-3,8	1325	8,3

300-985/1325 AB 975L

ca. 68	1350 1420 1460			12,4-15,3 5,4-8,1 0,5-1,0	ca.	12	100 250 400	6,8-8,0 5,6-7,2 3,3-4,8		2,0-2,5 8,5
	1560	•	1300 1380	0,5-1,0			600 710	0,8-2,2	-	

RQV 300-1325 AB976L

ca- 68	135d 15,2-17,8 170d 0 - 1	-	-	••	ca. 12	100 min. 8 300 5,4-5,6 400 1,5-3,7	600	
ca. 59	1375 9,4-10,4 1475 2,7-4,6					500 0 - 1	-	-

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oper rated sp	eed	Control rod	Intermediate	e rated sp	Control rod	Lower rated Degree of	speed	Control rod	Sliding sle Torque-co	eve travel introl travel
effection f control	rev/min	travel	deflection of control lever	rev/min	travel mm	dattection of control lever	rev/min	mm	rev/min	mm
	2	3	4	5	6	7	8	9	10	11
300-125	0 AB9	83DL, 990D	L		To	orque con	itrol	travel a :	_ 0	,5 mm
ca.66	1290	15,0-18,0		-	-	ca. 12			1290	8,3
	1370 1440	7,5-12,7 0 - 7,7					300	5,2-6,6 2,0-3,2	1200	0
	1530	0					850	0	600	0,5-0,6
300-107	75 ARC	18801				Torque	contr	ol travel	a = 0	,5 mm
						ca. 12		6,2-8,0	1100	8,3
ca. 68	1190	15,0-18,0 4,1-10,4			_	La. 12	300	4,4-6,2		
ca. 66	1075	5, 15,0-18,0	-		!		500 720	1,8-3,3	1075	0 0,5-0,
ca. 50		8,0-13,0 0 - 8								
RQV 30	0-107	5 AB988CL				Torque	conti	rol travel	la = 0),5 mm
ca. 68		0 15,0-18,		-	-	ca. 12	2 200	7,5-9,0 5,1-7,0	250 700	0,3-1,
1		0 8,C-13, 0 0 - 7, 0 C					500 710	1,1-2,4	1080	0
							· ·	1	500	D,5~0,
ROV 11	50 AB	999L (V132	74)							1
ca.48	1100			-	-	-	-	1 -	1150	5,4
	1150								-	-
RQV 30	00-100	00 AB1006DL	(V1312	10)		Torqu	e cont	rol trave	1 a =	0,5 mm
ca. 68	3 110 118 129			-	-	ca.1	300 450	4,5-7,0 1,0-2,3	600	0,3-1 3,8-4 8,2
							650	0	1000	0,5-0

Upper rated speed Degree of Control rod definetion travel		Degree of deflection	. !	ed Control rod travel	Lower rated speed Degree of deflection		Control rod	Sliding sleeve travel Torque-control travel		
effection f control			of control		mm	of control lever	rev/min	mm	rev/min	mm
ver	rev/min :	3	4		6	7	8	9	10	11
RQV 300)/525-	750 AB1009	L (V131	.57)						
ca.68	760 300	15,G-18,4 4,2-11,6	ca. 52	525 600	14,0-20,0 7,9-12,2			7,1-8,2 4,0-6,3	400	0,3-1,2 1,9-2,1
	815 850	0 -8,0		650 700	3,0-6,2		400 500	3,6-4,0	600 760	3,7-4,5 8,3
									_	
RQV 30	0-800 <i>/</i>	1325 AB10	14L							
ca.46	1330	13,0-21,	6 ca.30		11,9-14,	3 ca.10	100	9,4-12,2	150	0,8-1,4
	1420	9,2-14,		720 840	6,6-9,0		400	4,1-7,9 $0-3$	700 1020-	4,0-4,4 7,4-7,
!	1590			880	0		510	0	1330 1300	7,8
									-	-
RQV :	300/80	 0-1150 AB1	.016L (V1	2264),	1021	(V1315	_ 5)			
ca.66		0 15,0-18,		760	11,2-16,		2 200		3	0,5-1,
	120 125 131	0 8,4-13, 0 0 - 7, C 0		850 950 1030	7,6-11,		450 650 900	3,3-4,0	1	1,9-2, 8,2
									-	-
RQV	300/6	50-900 AB	1020L (VI	L2263)		· · · · · · · · · · · · · · · · · · ·				_
ca.6	6 910	15,0-18		3 616 70		5 ca.1	.2 200			0,3-1
	980 1020		,5	79 81	$0 \mid 0 - 2,$		600 720	0 1,8-4,		1,9-2 8,3
									-	-
RQ\	300-	1250 AB102	6DL	·····	Torque	contro	trav	ela=	0,5	
ca.6	13	00 14,5-17 80 6,8-12 50 0 - 7	2,4	-	-	ca.	12 200 300 500	4,9-7, 2,3-4,	1 800	3,8-4
		40 0	,-				840	0	125	0 0,5-0

per rated spe			Intermediate		ed Control rod	Lower rated Degree of		Control rod	Sliding slei	eve travel ntrol travel
egree of interesting in the control	tri ev/min m	ontrol rod avel m	1.0	rev/min	control rod travel mm 6	deflection of control lever	rev/min	travel mm 9	rev/min	mm 11
300-1325	<u>-</u> _	1084L		l	<u> </u>					
ca.69	1.430	16,0 7,7 1,0 10,4-12,3 2,3-6,0 0,3-1,0			oliary sp ary sprin		300 100 300 450 600	6,0 19,0-21,0 5,7-6,3 0,8-2,9 0 -1,0	1300 350	0 1,2-1,8
300-10	00 A7	16,0				ca.23	300	6,0	000	0
	1030 1070	12,6		1	iliary spi ary spring		100 300 400	19 - 21 5,7-6,3 3,0-4,4	980	0 0,8-1,
	1100	7,0-10,2 2,0-4,4 0,3-1,0					550	0 - 1		
300-13	325 A8	B1002DL								T
ca.69	1325 1380 1420	10,2	withou	ıt aux	iliary sp	ca.25	300	6,0	1300	0
	1330 1370	ca.10,5 ca. 9,5 0,3-1,0	with a	nuxili	ary sprin	g	300 500 700	5,7-6,3 1,7-3,8	450	0,8-1,
					•					
	T	T		1						
									1	}

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C. Settings for Fuel Injection Pump with Fitted Governor

Full load Test oil to	delivery emp 40°C (104°F)		Rotational- limitation Control rod stop	RQV		Fuel dei	ivery characteristics		Starting	fuel delivery	
rev/min	cm / 1000 strokes		rev/min			rev/min	cm / 1000 strokes		rev/min	cm1/1000 strokes	İ
1	2		3			4	5		6	7	
F 6 L	413 F - 141	kW/19	2PS / 26	550/min							
1325	91,5-93,5	RQ:	600	1000	88,	,5-91,5	•	10	00	119-129	
		RQV:	1340	800	87,	5-90,5	,				
		•				ŕ					
F8L	413 F - 188	kW/19	2PS / 26	550/min							
1324	91,5-93,5	RQ:	600	1000	88	,5-91,5	5	10	0	119-129	
		RQV:	1340	800	87,	,5-90, 5	5				
F 10 L	413 F - 23	6kW/3	20PS / 2	2650/min							
1325	91,5-93,5	RQ:	600	1000	88	,5-91,5)	10	00	119-129	
		RQV:	1340	800	87	,5-90,5					
F 12 L	413 F - 28	4kW/3	84 PS /	2650/min	!						
1325	91,5-93,5	RQ:	600	1000	88	,5-91,5		10	00	119-129	
	•	•	1340	800		.5-90,5					
						,	•				

Caution: These changed values apply to governors without torque control

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C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)	Rotational-speed limitation RQV Control-rod stop RQ	Fuel delivery characteristics	Starting fuel delivery
rev/miri cm 1/1000 strokes	stop RO rev/min 3	rev/min cm 1/1000 strokes 4 5	rev/min cm ^{1/1} 1000 strokes
192 PS / 2650 min	- RQ 300/1325 AB 929 L		
1325 91,5-93,5	·	max. 84,5	100 119-129
192 PS / 2500 min	- RQ 300/1250 AB 987 D	·L	a = 0,2 mm
1250 91,5-93,5	600 700 400		100 119-129
186 PS / 2500 min	- RQ 300/1250 AB 929 L		
1250 94,5-96,5	600 400	max. 84,5	100 119-129
176 PS / 2500 min	- RQ 300/1250 ABV 1294	6 D	a = 0,3 nm
1250 85,5-87,5	500 1000 700	•	100 119-129
168 PS / 2500 min	- RQ 300/1250 ABV 1294	6 D	a = 0,3 mm
1250 75,5-77,5	600 1000 700	•	100 119-129
176 PS / 2300 min	- RQ 300/1150 ABV 1224	2 D	a = 0,35 mm
1150 83,5-85,5	600 1000 700	-	100 119-129
160 PS / 2150 min	- RQ 300/1075 ABV 1224	3 D	a = 0,35 mm
1075 82,5-84,5	600 100 70	•	100 119-129

En

engine power Full-load delivery Control rod stop Test oil temp 40°C (104 F)		Rotational speed limitation	Fuel deliv	Fuel delivery characteristics		Starting fuel delivery lide switching point		ate speed control
rev/min	cm ³ 1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	revimin	cm ³ /1000 strokes	revimin	mm
1 _	2	3	4	5	6	7	8	

1325 91,5-93,5 1365-1375*400 max.84,5 100 119-129

2. 141kW/192 PS/2500/min - RQV 300-1250 AB 13392D, 300-800/1250 ABV13776D $119-129 \frac{a}{770} = 0.5 mm$ 100 1250 91,5-93,5 1290-1300*1000 91,0-94,0 700 91,5-94,5 (nur 13776D)

3. 137kW/186 PS/2500/min - RQV 300-1250 ABV12248 1250 90,5-92,5 1290-1300*400 max.84,5 100 119-129

4. 130 kW / 176 PS / 2500 / min - RQV 300 - 1250 AB983DL (V13122D) a = 0,5 mm 1250 85,5-87,5 1290-1300*1000 83,5-86,5 100 119-129 400 78,5-82,5

5. 107kW/145 PS/2400/min - RQV 300-1200 ABV 12259D 1250 71,5-73,5 1240-1250*1000 68,0-71,0 700 67,0-70,0 100 119-129

6. 124kW/168PS / 2300/min - RQV 300/800-1150 AB1021L (V12155) 1150 84,5-86,5 1190-1200* 119-129

7. 124kW/168 PS/2300/min - RQV 300-1150 AB999L (V13274)1150 85,5-87,5 1190-1200* 100 119-129 17- 20 1196

8. 101kW/137 PS / 1800/min - RQV 300-900 ABV13156 900 79,5-81.5 940-950* 400 max.82.5 100 119-129

9. 101kW/137 PS/1800/min - RQV 900 ABV 13273 900 80,5-82,5 910 936 17 - 20 100 119-129

10. 90kW/116 PS / 1500/min - RQV 300/525-750 AB1009L (V13157) RQV 750 ABV12507

750 78,5-80,5 790-800* 400 max.76,5 100 119-129

engine power Full load delivery Control rod stop Test oil temp 40°C	Rotational speed limitation	Fuel deli-	very characteristics	Starting lidle switchin	rue! delivery g-point	intermed rotationa Torque-c	speed
rev/inin cm ⁸ /100	0 strokes rev/min 3	revimin 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	travel : ev/min 8	mm
· · ·	1	ı	•	•		7	1

1. 141 kW/192 PS / 2650/min - EP/RSV 300-1325 A 8 B 1084 L 1325 91,5-93,5 1365-1375* 400 max. 82,5 100 119-129

2. <u>141kW/192PS / 2650/min</u> - EP/RSV 300-1325 A 8 B 1002 DL 1325 91,5-93,5 1365-1375* 400 max. 82,5 100 119-129

4.

F 6 L 413 FW

6.1.121kW/165PS / 2500/min - RQV 300-1250 ABV 13925D a = 0.5 mm2.108kW/147PS / 2500/min

1. 1250 79,5-81,5 1290-1300* 800 78,0-81,0 2. 1250 74,5-76,5 1290-1300* 800 71,0-74,0 100 119-129 100 119-129

7.1.115kW/156PS / 2300/min - RQV 300-1150 ABV 13926 D a = 0.5 nm2. 96kW/131PS / 2300/min 1. 1150 78,5-80,5 1190-1200* 800 78,0-81,0 100 119-129

2. 1150 68,5-70,5 1190-1200* 800 68,0-71,0 100 119-129

- RQV 300-1075 ABV 13927 D 8.1.<u>1</u>01kW/137PS / 2150/min $a = 0.5 \, \text{mm}$ 2. 91kW/124PS / 2150/min 1. 1075 73,5-75,5 1115-1125* 800 74,0-77,0 100 119-129 2. 1075 67,5-69,5 1115-1125* 800 68,0-71,0

100

119-129

9.

10.

Full (Contr	ne power oad delivery rol-rod stop oil temp 40°C (104°F)	Rotational speed limitation		Fuel delivery characteristics			Starting fuel delivery lide switching point			Intermediate rotational speed Torque-control travel		
ev/m	nin cm ³ /1000 strokes	rev/min 3		rev/min	cm ⁵	/1000 s	Irokes	rev/n	Ti In	cm ³ /1000 strakes 7	rev/min 8	mm
1.	188kW/256PS / 2	650/min	-	RQ 3	00/1	325	AB 929	L	()	11708)	•	1
	1325 91,5-93,5	600			400	ma x	. 84,5		100	119-129		
2.	188kW/256PS / 2	500/min	-	RQ 3	00/1	250	AB 987	DL	()	/ 13391 D)	a = (),2 nun
	1250 91,5-93,5	600			700 400		5-93,5 5-88,5		100	119-129		
3.	183kW/248PS / 2	500/min	-	RQ 3	00/1	250	AB 929	L	(V	12241)		
	1250 91,5-93,5	600			400	max	. 84,5		100	119-129		
4.	173kW/235PS / 2	500/min	-	RQ 3	00/1	250	ABV 12	946	D		a = (),3 mm
	1250 85,5-87,5	600			700 400		5-86,5 . 84,5		100	119-129		
5.	173kW/235PS / 2	300/min	-	RQ 3	00/1	150	ABV 12	242	D		a = (),35 mm
	1150 87,5-89,5	600			000 700 400	88,	0-91,0 0-91,0 . 84,5		100	119-129		
6.	157kW/213PS / 2	150/min	-	RQ 3	00/1	075	ABV 12	243	D	· · · · · · · · · · · · · · · · · · ·	a = (),3 mm
	1075 82,5-84,5	600			000 700 400	84,	5-84,5 5-87,5 . 84,5		100	119-129		
7.	o — Managanaganadi — P — Manada ang ay ay ay ordor (
8.						-						
9.						 						

Checking values in brackets

Full to Contri	e power ad delivery of rod stop al temp. 40°C (104 F)	Rotational speed limitation		ivery characteristics	ldle switchir	fuel delivery	Intermediate rotational speed Torque-control travel
rev/m	in cm ⁸ /1000 strokes	rev/min 3	rev/min	crn ⁹ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min mm 8
i.	188kW/256PS / 26		RQV 3	300-1325 AB 97	'4 L (12247), 976 L (13605), 1362	
	1325 91,5-93,5	1365-1375*	400 n	nax. 84,5	100	119-129	770=4,5mmRW
2.	188kW/256PS / 25		RQV 3	300-1250 AB 99 300-800/1250 A			
	1250 91,5-93,5				100	119-129	
3.	183kW/248PS / 25	500/min -	RQV 3	300-1250 AB 97	'4 L ((V 12248)	
	1250 90,5-92,5	1290-1300*	400 n	nax. 84,5	100	119-129	
4.	173kW/235PS / 25 1150 85,5-86,5		RQV 3 1000 700	800-1250 AV 98 83,5-86,5 86,5-89,5	3 DL (100	(V 13122 D) 119-129	a = 0,5 mm
5.	173kW/235PS / 23	300/min -	RQV 3	300-1150 ABV 1	3777 [D	a = 0.5 mm
	1150 84,5-86,5	1190-1200*		32,5-85,5 36,5-89,5	100	119-129	
6.	165kW/224PS / 23	300/min -	RQV 3	300/800-1150 A	NB 102	1 L (13155)	
	1150 84,5-86,5	1190-1200*	400 n	max. 84,5	100	119-129	
7.	165kW/225PS / 23	300/min -	RQV 1	1150 AB 999 L	(V 1:	3274)	
	1150 85,5-87,5	1160			100 1196	119-129 17- 20	
8.	165kW/225PS / 22	200/min -	RQV 3	300-800/1100 A	AB 973	DL (V 1323	30 D)a = 0,7mm
	1100 85,5-87,5	1140~1150*	1000 700	84,0-87,0 90,0-93,0	100	119-129	
9.	132kW/180PS / 2	1500/min -	RQB 3	300-1075 ABV 1	3944	D	a = 1,2
	1075 71,5-73,5	1115-1125*	1050 800		100	119-129	
10.	134kW/182PS / 18	300/min -	RQV 3	300/650-900 AE	BV 131	56	
	900 79,5-81,5	910	400 ma	ax. 83,5	100	119-129	

engine power full load delivery Control-rod stop fest oil temp 40°C (104°F)		ρ	Rotational speed limitation	Fuel deli			tuel delivery ng point	Intermediate rotational speed Torque-control travel	
ev/m	in cm	8/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	1	m m
1	2		3	4	5	6	7	8	<u> </u>
11.	134kk	V/182PS / 1	8 <u>00/min</u>	- RQV	900 ABV 13273	•	í	•	•
	900	80,5-82,5	910			100	119-129		
						936	17- 20		
12.	114kb	V/155PS / 1	500/min	- RQV 3	300/525-750 A	 3 1009	L (V 13157)		
	750	78,5-80,5	760	400	max. 82,5	100	119-129		
13.	114kb	N/155PS / 1	500/min	- RQV 7	750 ABV 12507	······································			
	750	78,5-80,5	76C			100	119-129		

F 8 L 413 FW

16.	1.	162kW	/220 PS / 2	<u>500/min</u> - R	QV 30	0-1250 ABV 13925	D	a = 0,5 num
	2.	144kW	/196 PS / 2	500/min				
	1.	1250	79,5-81,5	1290-1300*	800	78,0-81,0 100	119-129	
	2.	1250	74,5-76,5	1290-1300*	800	71,0-74,0 100	119-129	
17.	1.	153kW	/208 PS /23	00/min - RQV	300-	1150 ABV 13926 D		a = 0,5 mm
	2.	129kW	/175 PS /23	00/min				
	1.	1150	78,5-80,5	1190-1200*	800	78,0-81,0 100	119-129	
	2.	1150	68,5-70,5	1190-12ቦ0*	800	68,0-71,0 100	119-129	
18.			/184 PS /21 /164 PS /21		300-	1075 ABV 13927 D		a = 0,5 mm
				1115-1125* 1115-1125*	800 800	74,0-77,0 100 68,0-71,0 100	119-129 119-129	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Full 198 Contra	e power ad delive it rod sto I temp	ery	Rotational speed limitation	Fuel deliv	rery characteristics	iJie	fuel delivery	rotational Torque	! speed
rev/mii	n cm	1000 strokes	rev/min	resimin	cm ³ /1000 strakes	rev/min	cm ³ : 1000 strokes	rev/min	l m m
1	2		3	4	5	6	7	8	
. 1	88kW	/256PS / 265	50/min	· - EP/R	sv 300-1325 A	8 B	1084 L	•	1
1	325	91,5-93.5	1365-1375*	400	max.84,5	10	0 119-129	}	
. 1	88kW	/256PS / 250	J0/min	- EP/R	SV 300-1325 A	8 B	1002 DL		
1	325	91,5-93,5	1365-1375*	400	max.84,5	10	0 119-129)	
		•			,				
3. 1	47kW	/200PS / 190)u/min	- EP/R	SV 300-1000 A				
	950	79,5-81,5	990-1000*	700	A 80,5-83,5		1002 DL 0 119-129)	

4.			

max. 84,5

400

6.	

, eres <u></u>		 	
•			

8.	

10.

Checking values in brackets

* 1 mm less control rod travel than col. 2

ngine pow ull load del untrol rod est oil temp	ivery	Rotational speed limitation		Fuel deliv	rery charac	tenstics	Starting idle switchir	fuel delivery ng point	Intermed rotational Torque-c travel	speed
.A\wie	cm ³ /1000 strokes	revimin		rev/min	cm ³ /1000) strokes	rev/min	cm ³ /1000 strokes	1	l m m
	2	3		4	5		6	7	8	ļ
. 236	kW/320PS / 26	50/min	- 1	RQ 300)/1325	(V117	09)	•		
1325	91,5-93,5	600		400	max.	84,5	100	119-129		
2. 230	5kW/320PS / 2	2500/min	-	RQ 300	0/1250	AB984D	L		a = 0	,2 mm
1250	91,5-93,5	600	10 7	00 00		-94,0 -94,5	100	119-129		
. 22	BkW/310PS / 2	2500/min	_	RQ 300	0/1250	ABV122	44			
1250	89,5-91,5	600		400	max.	84,5	100	119-129		
. 21	7kW/295PS / 2	?500/min	_	RQ 300	0/1250	AB9860	L (V1	2159D)	a = 0	,3 min
1250	86,5-88,5	600	10 7	00 00		-87,5 -90,5	100	119-129		
. 21	6kW/293PS / 2	2300/min	-	RQ 300	0/1150	ABV122	245D		a = 0	,35 mm
1150	84,5-86,5	600	10 7	00 00		-85,5 -89,5	100	119-129		
. 19	7kW/267PS / 2	2150/min		RQ 30	0/1075	ABV122	?46D		a = 0	,35 mm
1075	83,5~85,5	600	10 7	00 00	-	-84,5 -87,5	100	119-129		
· .									· Philippe - an Anton - et a alterna	
3.								· · · · · · · · · · · · · · · · · · ·		

Checking values in brackets

ingine pow ull load deli Control rod : est oil temp	very	Rotational speed limitation	Fuel del	ivery characteristics	idle	g tuel delivery ling point		ediate nal speed e-control
ev/min d	m ³ 1000 strokes	rev/miii 3	rev/min	cm ³ /1000 strokes	rev/mii	n cm ³ /1000 strakes	J.	n mm
1. 236	<w 2<="" 320ps="" td=""><td>650/min -</td><td>•</td><td>300-1325 AB89 300-800/1325</td><td>, ,</td><td>/12249) 271</td><td>, –</td><td>'</td></w>	650/min -	•	300-1325 AB89 300-800/1325	, ,	/12249) 271	, –	'
1325	91,5-93,5	1365-1375	400	max. 84,5	100	119-129		
2. 228	kW/310PS / 2	550/min -	RQV :	300-1275 ABV1	3664D		a =	0,5 mm
1275	90,5-92,5	1315-1325*	1000 700	90,5-92,5 91,0-94,0	100	119-129		
3. 23	5kW/320PS /	2550/min -	RQV 3	300-1250 AB10	26DL		a =	0,5 nm
1250	91,5-93,5	1290-1300*	1000 700	91,0-94,0 90,0-93,0	100	119-129		
4. 228	3kW/310PS /	2500/min -	RQV 3	300-1250 AB89	8L	(V11962)		 -
1250	90,5-92,5	1290-1300*	400	max. 84,5	190	119-129		
5. 21	7kW/295FS /	2500/min -	RQV 3	300-1250 ABV1	3118D		a =	0,5 mm
1250	86,5-88,5	1290-1300*	1000 700	84,5-87,5 87,5-90,5	100	119-129		
6. 19:	3kW/262PS /	2500/min -	RQV 3	300/850 - 1250 /	ABV122	294		
1250	79,5-81,5	1290-1300*	400	max. 82,5	100	119-129		
7. 216	skW/293PS /	2300/min ~	RQV 3	300-1150 AB98	BDL	(V13119D)	a =	0,5 mm
1150	84,5-86,5	1190-1200*	700 400	83,0-86,0 75,0-79,0	100	119-129		
8. 216	skW/293PS / 3	2300/min -	RQV 3	300/800-1150	AB1016	SL (V12264)		
1150	84,5-86,5	1190-1200*	400	max. 82,5	100	119-129		
9. 200	5kW/280PS / 3	2300/min -	RQV 3	800-1150 AB898	BL			
115:)	79,5-81,5	1190-1200*	400	max. 82,5	100	119-129		
		2150/min -	•				a =	0 , 5 mm.
1075	83,5-85,5	1115-1125*	1000 700 400	81,5-84,5 84,5-87,5 max. 82,5	109	119-129		

Checking values in brackets

ngine pi ill load (ontroi ro est oil te	telivery	, (104 F)	Rotational speed limitation	Fuel delin	very characteristics	ldle	g toel delivery	Intermed rotationa Torque travet	i speed
vy/min	cm ⁸ 10	000 strokes	rev/min	tex, wiu	cm ³ /1000 strokes	rev/mi	n cm³/1000 strokes	1	mm
	2		3	4	5	6	7	8	
1. 1	97kW/	267PS / 2	150/min -	RQV 3	0C/750-1075	AB931L	. (V12575)		
1	075	83,5-85,	5 1115-1125	* 400	max. 82,5	100	119-129		
2. <u>1</u>	84kW/	250PS / 2	000/min -	RQV 3	00-1000 AB10	006DL	(V13121D)	a =	0,5 mm
1	000	80,5-82,	5 1040-1050	* 700	83,5-86,5	100	119-129		
13. 1	84kW/	/250PS / 2	000/min -	RQV 3	00-1000 ABV1	13550			
1	000	80,5-82,	5 1040-1050	* 400	max. 82,5	100	119-129		
14. 1	68kW/	/228PS / 1	800/min -	RQV 3	00/650-900 A	AB1020L	. (V12263)		
	900	80,5-82,	5 940-950*	400	max. 82,5	100	119-129		
15. 1	42kW/	193PS / 1	500/min -	RQV 3	00/525 - 750 <i>F</i>	\B998L	(V12262)		
F	750 <u>10</u> L	78,5-80, 413 FW	5 790-800*	400	max. 82,5	100	119-129		
6. <u>1</u>	.202k	W/275PS /	2500/min -	RQV 3	00-1250 ABV1	13928D		a =	0,5 min
			2500/min						
2. 1			5 1290-1300 ³ 5 1290-1300 ³						
<u>د . </u>	L J()	74,5-70,	5 1290-1300	000	/1,0-/4,0	100	119-129		
		1/261PS / 1/219PS /	2300/min - 2300/min	RQV 3	00-1150 ABV1	3929D		a = 0	,5 mm
1. 1	150	78,5-80,	5 1190-1200	800	78,0-81,0	100	119-129		
2. 1	150	68,5-70,	5 1190-1200	* 800	68,0-71,0	100	119-129		
		/228PS / /219PS/ 2	2150/min - 150/min	RQV 3	00-1075 ABV1	3930D		a = 0	,5 mm
1.	1075	73,5-75,	5 1115-1125*	800	74,0-77,0	100	119-129		
2.	1075	67,5-69,	5 1115-1125*	800	67,0-70,0	100	119-129		

Checking values in brackets

Full-to Contri	e power lad delivery of rod stop ortemp 40°C (104°F)	Rotational speed limitation	Fue	l deliv	ery Characteristics	Starting Idle switchin	fuel delivery		Intermed rotationa Torque- travel	speed
re√/m	in cm ² /1000 strokes	rev/min	16A)	ישוג:	cm ³ /1000 strokes	rev/min	cm ³ , 1000 stro	kes	rev/min	mm
<u> </u>	2	3	4		5	6	7		8	
1.	283kW/384PS / 26	550/min	- RQ	300)/1325 AB930L	(V11	1709)			
	1325 91,5-93	,5 600	400	max	(. 84,5	1	100 11	9-129)	
2.	283kW/384PS / 2		- RQ	300)/1250 AB984D	L (V1	3407D)		a = 0	,2 mm
	1250 91,5-93,	5 600	700	91,	,0-94,0 ,5-94,5 ,5-88,5	1	100 11	9-129)	
3.	274kW/372PS / 2	2500/min		RQ	300/1250 AB9	30L (V12244)			
	1250 89,5-91,	5 600	400	max	a. 84 , 5	1	00 11	9-129)	
4.	260kW/353PS / 2	500/min	-	RQ	300/1250 AB98	86DL (V13159D)		a = 0	.3 mm
	1250 86,5-88,	5 600	700	84, 87,	5-87,5 5-90,5 . 82,5			9 - 129		,
5.	259kW/352PS / 2	300/min	-	RQ	300/1150 ABV	12245	D C		a = 0	,35 mm
	1150 84,5-86,	5 600	700	86,	5-85,5 5-89,5 . 82,5	1	00 119	9-129		
6.	236kW/320PS / 2	150/min	- RQ	300	/1075 ABV1224	16D			a = 0	,35 nm
	1075 83,5-85,	5 600	700	84,	5-84,5 5-87,5 . 82,5	1	00 119	9-129	Ţ	,

C.	Settings	for	Fuel Inj	ection	Pump with	Fitted	Governor
				,	p		

Full Ina Control	power d delivery I rod stop temp 40°(C (104 F)	Rotational speed limitation	Fuel deli	very characteristics	idle	fuel delivery	Intermed rotationa Torque travel	i speed
rev/min 1	cm ²⁸ /1	000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1.	283kW,	/384PS / 2	650/min ~	RQV 3	00-1325 AB898I	[(1	12249)		+
	1325	91,5-93,	5 1365-1375	* 40	0 max. 84,	5 1	119-12	9	
2.	283kW,	/384PS / 2	500/min -	RQV 3	00-1250 AB1026	6DL (V	/13408D)	a = 0	,5 nm
	1250	91,5-93,	5 1290-1300		00 91,0-94.0 00 91,5-94,		00 119-12	9	
3.	274kW,	/372PS / 2	500/min -	RQV 3	00-1250 AB898I				
	1250	89,5-91,	5 1290-1300	* 40	0 max.84,5	1	00 119-12	9	
4.	260kW/	/353PS / 2	500/min -	RQV 3	00-1250 ABV 1	31180		a = 0	,5 mm
	1250	86,5-88,	5 1290-1300	71	00 84,5-87,5 00 87,5-90,5 00 max. 82,5	5	00 119-12	9	
		/335PS / 2 /200PS / 2		RQV 3	00-1250 ABV 13	3287D		a = 0	,55 mm
	1250	82,5-84,	5 1296-1300				overquantity	,	
	1250	50,5-52,	5	109	00 84,0-87,0 00 50,0-53,1 00 39,0-42,0	l '	00 119-129	9	
6.	243kW/	330PS / 2	500/min -	RQV 30	00-1250 ABV 13	3621D		a = 0	,5 mm
	1250	78,5-80,	5 1290 - 1300 ⁹		77,0-80,0 73,0-76,0		00 119-129	9	
7.	259kW/	352PS / 2	300/min -	RQV 30	00-1150 AB898L	, 101	6L (V12264)		
	1150	84,5-86,	5 1190-1200 *	400) max. 82,5	5 1	00 119-129)	
8. 2	59kW/3	52PS / 23	00/min -	RQV 30	00-1150 AB988D)L (V	12118D)	a = 0	.5 mm
			5 1190-1200*	100 70		1	00 119-129		
9.	247kW/	336PS / 2	300/min -	RQV 30	00-1150 AB962L				
	1150	83,5-85,	5 1199-1200*	400	max. 82,5	1	00 119-129)	
10.	236kW/				00/750-1075 AB				
	1075	83,5-85,	5 1190-1200*	400	max. 82,5	1	00 119-129	+	

Checking values in brackets

-uli ioa Control	power d delivery rod stop temp 40°0	C (104 F)	Rotational-speed limitation	fuel dela	very characteristics	lale	tuel delivery		Intermed rotationa Torque	speed
rev/min	İ	000 strokes	rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 st	rokes	travel rev/min	mm
11.	236kW/	320PS / 2		ROV 30)0-1075 AB988		(12120D)		a = 0	+ . 5mm
	1075	83,5-85,		100 70	ABV 13	162D 5 1 5	00	119-		, 07
12.	199kW/ 1075	270PS / 2 71,5-73,	150/min - 5 1115-1125*	105	00-1075 ABV13 50 70,5-72, 00 83,0-86,	5 1	00	119-	a = 1 129	, 2cam
13.	221kW/ 1000	300PS / 2 80,5-82,	000/min - 5 1049-1050*		00-1000 AB100 ABV13 0 83,5-86,	163D	12121D) 00	119-1	a = 0	,5 mm
14.	200kW/ 1000	272PS / 2 80,5-82,	000/min - 5 1040-1050*	·	00-1000 ABV 1		00	119-1	29	
15.	202kW/ 900	275PS / 1 80,5-82,	800/min - 5 940-950*		00-900 ABV135 00/650-900 AB	V 1226	3	119-1	29	
16.	171kW/ 750	232PS / 1 80,5-82,	500/min - 5 790-800*		00-750 AB998L 00 max. 82,	•	12262) 00	119-1	29	
	F12 L	414 FW	 -							
		/330PS / :		RQV 30	0-1250 ABV13	928 D			a = 0	,5 mm
1.	1250 1250		5 1290-1300*		, , , , ,		00	119-1	29	
	-230kW -193kW	/313PS / 2 /262PS/ 23	2300/min - 1	RQV 30	0-1150 ABV139	 929D		a	= 0,5	ס חוחו
$\frac{18.1}{2}$			5 1190-1200*	800	78,0-81,0) 1(00	119-1		
1.	1150 1150		5 1190-1200*	800	68,0-71,0)				
1. 2. 19.1	1150 -202kW,		5 1190-1200* 2150/m.in -R	·	68,0-71,0 -1075 ABV1393	··		a	= 0,5	5 mm

Checking values in brackets

Testoil-ISO 4113

RO 250/1250 AB 1170-2 R PE 10 A 90 D 320 LS 2362 Komb.-Nr. 0 400 649 228 1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4 0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315 + 0,5 + 0,5 + 0,75 + 0 supersedescompany: MAN D 2538 M/MF 188 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
ev/min	mm 2	cm ³ /100 strokes 3		mm 2	cm ³ /100 strokes 3	mm
1250	11,5+0,1	10,3-10,4	0,3(0,45			
250	7,4-7,6	0,9-1,5	0,25(0,4			
			6			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	Full-load spec		cifications (4)	Idle spec			cifications (5)	Torque o	control 3
Control rod travel	Cont	trol Control travel	rev/min	rev/min	Control rod travel	rev.'mın 9	10	rev/min	travel mm
600 15,6-16,4	600 16		1295-1310 1365-1395		6,0	250 360-	5,9-6,1 400=2,0	600 870	11,5-11,6 12,1-12,2 11,9-12,1 11,5-11,8
		0.6			1	205 - 1	310 min ⁻¹		1 mm less control

on flyweight assembly dimension a =

Speed regulation At

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de	elivery on ontrol lever ip. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics	Starting f	tuel delivery
rest oil teil rev/min 1	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes 5	rev/min	red travel cm ³ /1000 strokes / mm 7
1250	102,5-103,5 (100,5-105,5)	-	500	95,5-98,5 (93,5-100,5) 90,0-94,0 (88,0-96,0)	250	133,0-143,0 (130,0-146,0) =18,3-19,3 mm RW 6,5 mm RW
	<u> </u>	<u> </u>	ــــــــــــــــــــــــــــــــــــــ	<u> </u>		10.83

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 WPP 001/4 KHD 12,7 1 and Governors

2. Edition

PE 8 A 95 D 410 LS 2451

RQV 300-1150 AB 1044 DL

supersedes 9.82

Komb.-Nr. 0 400 648 116

KHD company

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3

F 8 L 413 FW 153 kW (208 PS)

 $0 - 45 - 90 - 135 - 180 - 225 - 270 - 315^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

/ 2300 min-1 Change-over point

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (forque-gantrol valve)
1150	9,-9,2	7,9 - 8,1	0,3(0,6)			
300	5,9-6,1	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each cutlet according to the values in

B. Governor Settings

Upper rated s	speed			Intermediate	rated spe	eed		Lower rated	speed		Sliding sleeve travel	
Degree of deflection	rev/min Control	Control rod (travel	1a)	Degree of deflection		Control ro travel	d	Degree of deflection		Control rod travel		1
of control	rod travel	mm rey/min (2a)	of control lever	rev/min	mm	4	of control lever	rev/min	mm 3	rev/min	mm
1	2	3	$\overline{}$	4	5	6		7	8	9	10	11
-max.	1150	15,2-17 1190-12		-	1	-		ca.11	100 300 540-6 750	min.7,5 5,9-6,1 00 = 2,0 0,1	300 750 1190	1,4-1,6 4,0-4,3 8,5
	4,0 1350	1225-12						320-400 3e)				

Torque control travel a =

C. Settings for Fuel injection Pump with Fitted Governor

Full-load de Control-roc Test oil tem		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	ery characteristics (5a)	Starting Idle switchin	•	Torque- travel	Control (5) Control rod travel
rev/min	cm³/1000 strokes	rev/min (4a)	te∧/mi∪	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1150	78,5-80,5	1190-1200*	800	77,5-81,0 (76,0-83,0)	100	119-129		9,1-9,2
	(76,5-82,5)			(70,0-03,0)			350	9,4-9,6
							500	9,5-9,6
					100-	220 (80-240)		

Checking values in brackets

9.83

Kundendienst: Kfz-Ausrustung mbH, D-7 Stuttgert 1: Postfach 50: Printed in the Federal Republic of Germany e Federale d'Allemagne par Pobert Sosch GmbH

^{**} Set control-rod stop to contact at 600 min/!

^{* 1} mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 KHD 4,1 c 2

1. Edition

En

supersedes KHD compan F 4 L 913

engine

Road-building machine

PES 4 A 80 D 410/3 RS 2523

Komb.-Nr. 0 400 864 058

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pymp Settings

Port closing at prestroke

Festoil-ISO 4113

(1,85-2,05)

mm (from BDC)

Rotational	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
speed revimin 1	mm 2	cm·/100 strokes	cm ^{-/} 100 strokes ≟	mm 2	cm:/100 strokes 3	mm 6
1250	11,6+0,1	6,9-7,0	0,25(0,4)			1
325	8,2-8,4	1,0-1,6	0,2 (0,35)			

RSV 325-1250 A 8 B 540-1 L

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	crated speed Control rod travel mm		Interm	ediate rat	ed speed	Control- lever deflection in degrees	rev/min 8	crated speed Control rod travel mm	1131	rque control Control rod travel mm
loose	1	0,3-1,0	-	<u>.</u>	-	ca.17	325 100 325	6,5 min.19,5 6,9-7,1	1250 500 965	11,6-11,7 12,1-12,2 11,8-12,0
ca.56	10,6 4,0 1555	1290-1300 1390-1420 0,3-1,7					630-6			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(29)	ili-load stop	6 Potational- speed limitat	1.3.4.1	iei de: very paracteristics	Starting for	uel delivery (5)	43 :c'	Control rod
rev/min	emp 40°C (104°F) cm1/1000 strokes 2	changed to 1 rev/min 3	rev-min	cm·/1000 strokes 5	rev/min	cm#1000 strokes 7	rev/min 8	travel
250	68,5-69,5 (67,0-71,0)	1290-1300*	800	64,5-66,5 (62,5-68,5)	-	-	-	-

Checking values in brackets

1 mm less control rod travel than col 2



Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 PEN 7,0 b 3

1. Edition

Εr

PE 6 P 110 A 320 RS 260 Z

RSV 250-1250 P0/374/2 R

supersedes.

Komb.-Nr. 0 401 876 190

engine TAMD 70 D 206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Puritip Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-150 4113

(2.75-2.95)

mm (from BDC)

Rotational	Control rod	Fuel delivery	Ditterence	Control rod travel	Fuel delivery	Spring pre-tensioning itorque-confrol valve)
rev/min	mm 2	cm ³ /100 strokes	cm ^{-,} 100 strokes 4	mm 2	cm:/100 strokes 3	mm Ö
1000	11,9+0,1	14,3-14,5	0,4 (0,8)			2,5 ± 0,1
250	5,9-6,1	1,1-1,5	0,25(0,55	•		(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interme	ediate rat	ea speed	(4)	Lowe	r rated speed	1 3	rque control
Degree of defrection	Control rod travel	Control rod travel				Control- lever		travel	rev:min	travel
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 17	25 0	5,5	-	-
10036	x =	4,5					100	min. 20,	þ	
ca. 47	10,9 4,0 1450	1295-1309 1340-137 0,3-1,7					250 430-4	5,9-6,1 90 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	III-load stop	Rotational speed limitat	1.32	ei delivery aracteristics	Starting fi	Jei delivery 5	40	e stop Cantrol rod
Test on te	cm ⁻ /1000 strokes	Note changed to : rev/min 3	rev/min	cm ² /1000 strokes 5	rev/min 6	cm ⁻ r1000 strokes 7		travel mm
LDA 1000	1,2 bar 143,0-145,0 (140,0-148,0)	1295-1305 *	LDA 1000	0 bar 86,0-89,0 (83,0-92,0)	100	160,0-200 = 20,0 21,0 mm R		5,9-6,1

Checking values in brackets

1 mm less control rod travel than col. 2

12.83

BOSCH

Geschaftsbereich KH. Kuddendienst. Kf2-Ausrustung ≟ 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator PEN 7,0 b 3 - 2 -

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = 5ar	Gauge pressure = bar	(1)
PE 6 P RS 260 Z +RSV PO/374/2R	1,0	0,36	11,7 - 11,8 8,6 - 8,7
	: : :		
	•		
	:		
			:

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 d

4. Edition

PES 6 A 90 D 210 RS 2628 Komb.-Nr. 0 400 866 104 RSV 325-1200 A0B 2140 L

A0C 2140 L

supersede 6.83 company Ford

Dover 363 T/C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

At port closing the locating pin must engage in

the slot of the pointer.

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travei	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm ³ / 100 strokes	mm	cm³/100 strokes	imm i
1	2	3	4	2	3	6
1175	11,5+0,1	8,4 - 8,5	0,3(0,45)			
350	5,1-5,3	0,5 - 1,1	0,2(0,4)			
		İ				
				į		
		ļ]

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper	rated speed		Intermediate	rated spe	ed.	4 Lower	r rated spe	ed.	3 Tor	que control
Degree of deflection of control lever	rev/min	travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	**	-	ca. 38	350	4,7	-	-
	X =	4,0					100 350	min.19,0 5,1-5,3		
ca. 67	10,5 4,0 1540	1240-1250 13 7 5- 14 05 0,3 - 1,7	:					50= 2,0 max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.	Gal Fuel delivery characteristics		Starting Idle	fuel delivery	(5a) Idle stop	
Test oil terns rev/min 1	cm ³ /1000 strokes	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ / 1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1175	0,7 bar 83,5-84,5 (81,5-86,5)	1240-1250 *	LDA 500	0 bar 49,0 - 51,0 (47,0 - 53,0)	i (76,0 - 90,0 73,0-93,0) = 19,0-21,0 mmx RW	İ	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

FOR 5,9 d

-2-

Testatn =

1175

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure har	Gauge pressure - bar	mm (1)
PES 6 ARS 2628 withAOB 2140 L	0,7	0 0,48 0,30	11,5 - 11,6 10,1 - 10,2 11,1 - 11,2 10,2 - 10,4
	,		

Notes

(1) when n

rev/min and gauge pressure =

bar til- maximum full-foad control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 KHD 1 q 3 6. Edition

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 A 8 B 2168 L A8C 2168 L

supersedes 9.83 KHD company

Komb.-Nr. 0 400 864 054

1 - 3 - 4 - 2 je $90^{\circ} \pm 0.5^{\circ}$ (± 0.75°)

BF 4 L 913 66 kW(90 PS)

Symbol S 29 =

/ 2300 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

tractor DX 92 (1) 60 kW (82 PS)

/ 2300 min⁻¹

tractor DX 86 (2)

A. Fuel Injection Pump Settings

Port closing at prestroke (2,45-2,65)

Testoil-ISO

mm (from BDC)

Symbol S 28 =

BF 4 L 913 T

Control rod	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre tensioning (torque-control valve)
mm (2)	cmil/100 strokes	cm 3 / 100 strokës	mm	cm\$ 100 strokes	mm
2	3	4	2	3	6
11,8+0,1	8,2 - 8,3	0,3(0,45)	10,6+0,1	7,5 - 7,6	
7,7-7,9	0,9 - 1,5	0,2(0,4)	7,7-7,9	1,0 - 1,6	
	mm 2 2 11,8+0,1	mm 2 cmi\(\frac{1}{100}\) strokes 3 11,8+0,1 8,2 - 8,3	travel 2 cmil/100 strokes 100 strokes 111,8+0,1 8,2 - 8,3 0,3(0,45)	travel	travel

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	i revimin	Interme	diate :atec	speed	Lower rated speed 3 Torque control					
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	fev/min	Control red travel mm	rev.min	Control rod travel mm	
1	2	3	.1	5	6	7	В	9	10	11	
loose	800	0,3 - 1,0	-	_	-	ca.29	325	7,3	1150	11,8+0,1	
	x =	4,0					100 325	min.19,5	500 965	12,3+0,1 12,0+0,2	
ca.53	10,8 4,0 1495	1190-1200 1325-1355 0,3 - 1,7					700-760		905	12,0+0,2	

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	speed lim		11.341	iel delivery aracteristics	Starting ! Idle	uel delivery 5	4a Idle stop		
rev/min	cm ³ :1000 strokes	changed to in revintin	rev/min 4	cm ³ /1000 strokes	iev/min	cm®1000 strokes 7	rev/min 8	travel mm 9	
(1) 1150	82,0-83,0 (80,0-85,0)	1190-1200*	800	79,0-82,0 (76,5-84,5)	100	108,5- 118,5 = RW 16,9 - 17,4mm	_	-	

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

B. Governor Settings

	on liave		Intermediate rated speed		Control- lever deflection in degrees 7	rev/min	rated speed Control rod travel mm	131	rque control Control rod travel mm	
1 oose	800 x =	0,3-1,0	-	-	-	ca.26	325 100	7,0 min,19,0	1150 500	10,5+0,1 11,2+0,1
£0.36	9.6 4.0 1475	1220-1230 1325-1355 0,3-1,7					325 720-780	7,4-7,6	900	10,9+0.3

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	II-load stop	6 Rotational- speed limitat		el delivery aractenstics	Starting f	uet delivery 5	4a) Idle stop	
	emp. 40°C (104°F)	Note: changed to) rev/min 3			rev/min	cm-/1000 strokes 7	rev/min 8	travel mm 9
(2) 1150	74,5-75,5 (72,5-77,5)	1220-1230*	800	65,5-68,5 (63,5-70,5)	100	108,5-118,	5 -	-
						* 1 mm less col		

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

B. Governor Settings

	travel mm	Control rod travel mm rev/min	Interm	ediate rate	ed speed	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	160	rque control Control rod travel mm
1	2			_ 	L					
29										

C. Settings for Fuel Injection Pump with Fitted Governor

(20)	ill-load stop	Rotational-speed limitat.		el delivery aracteristics	Starting for the starti	Control			
Test oil te	emp. 40°C (104°F) cm ³ /1000 strokes	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strckes 7	rev/min	travel mm 9	
' -	-								
		Ì	<u> </u>						

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 KHD 9,5 b

1. Edition

PE 6 AM 80 B 310 RS

RQ 250/1075 A 314 D A 386 D supersedes KHD company

"diesel" = flap touching

"gasoline" = flap free-standing

engine

F 6 L 714 A

3.66

(-, ... A 314 D) All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

 $2,15 \cdot 0,1$

mm (from BDC)

Rotational speed rev/min 1	Control rod travet mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,4 - 7,8	0,4			
	9	3,9 - 4,7				
	15	10,3 - 11,4				
200	9	2,9 - 3,7				
				_[

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Checking of slider Full-load speed roman Ful				cifications (4)	Idle speed regulation Setting point Test specifications (5)				Torque control		
1	Control rod travel	rev/min	Control red travel mm	Control rod travel mm 5	۱ ,	rev/min	Control rod travel mm	rev/min 9	Control rod travel	rev/min	Control rod travel	
1050	14,0-14,8	1050	14,4	1100 1120 1140 1190	14,2-14,4 4,5-12,6 0 - 9,0	440	0	200 250 300 340	4,8-7,5	600	16,0-16,2 15,5-15,9 14,5-14,9	

Torque-control travel on flyweight assembly dimension a =

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever fap. 40°C (104°E)	Control rod stop (3a)	Fuel delive	ery characteristics (3b)	Starting fi	<u> </u>
rev/min	cm³/-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes/ mm
1050	(diesel) 72,5 - 74,5 (gasoline) 78,5 - 82,5	400	800	74,5 - 77,5 75,0 - 78,0	100	mind. 9,9

Checking values in brackets

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 FIA 5.5 h 1. Edition

PES 6 MW 80/720 RS 1015

RQV 300-1600 MW 47

supersedes-

0 403 446 142

1 - 5 - 3 - 6 - 2 - 4

0 - 60-120-180-240-300

company Iveco-Fiat 8060.24.670

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,**1**0-2,20 Port closing at prestroke

mm (from BDC) RW 9 - 12 mm

Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,2+0,1	6,0-6,2	0,35(0,6)			
300	7,3-7,4	1,05-1,45	0,35(0,55)		
1600	11,2+0,		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

deflection of control	rev/min Control rod travel	Comm 23 rod travel mm rey/min 3	18	'•'•	rated spe rev/min 5	control rod travel	Lower rated: Degree of deflection of control lever	rev/min	Control ro travel mm 9	3	Sliding Sl rev/min 10	mm
max.	1640 1850		_				ca. 16		min.8, 7,3-7,			,
ca. 64	10,2 4,0						330-800					
							(3a)		·			

Torque control travel a =

Test electrically unlocked starting delivery with 24 V.

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roo Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel deliv high idle s	ery characteristics(58)	Starting Idle switchir	fuel delivery (6) ng point l	travel	control 5 Control rod travel
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	ст ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1000	60,0-62,0 (58,5-63,5)	1640-1650*	1600	69,0-73,0 (67,0-75,0)		·		

Chacking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 FIA 5,58 1. Edition

Festoil-ISO

RQV 375-1600 MW 49 PES 6 MW 90/720 RS 1015 0 403 446 146

supersedes -

company: IVECO-Fiat 8062.24.668 140 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Beriches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	(2 45-2 65) Fuel dekvery	Difference cm ³ /	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
rey/miñ 1	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	3	6
1000	11,9 ^{+0,1}	7,6-7,8	0,35(0,6)			
300	8,3+0,1	1,0-1,4	0,35(0,55			
1600	11,9+0,1		0,5 (0,7)			
500	10,4+0,2					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediat	e rated sp	1	Lower rated	speed		Sliding s	leeve travel
-	rev/min Control rod travel	travel	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	control rod travel mm 3	rev/min	mm 11
max.	1640 1950	15,2-17,0 0-1,0	3			ca. 16	375 100	8,3-8,4 min.9,0		
ca.63	10,9 4,0	1640-165 1810-184	0			390-880				
						39				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-toad de Control-roe Test oil ten	distop	Rotational-speed (20) timitation intermediate speed	Fuel deliv high idle s	peed 50	Starting Idle switchir	•	Torque-	Control (5) Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1000	0,5 bar 76,0-78,0 (74,0-80,0)	1640-1650*	LDA 1600 LDA 500	0,5 bar 82,0-86,0 (80,0-88,0) 0 bar 42,5-44,5 (40,5-46,5)	200	160,0-180,0 (157,0-183,0		

Checking values in brackets 4-

Testain =

500

revimin decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control red travel- difference
	Gauge pressure bar	Gauge pressure bar	mm (1)
RS 1015 with	0,5		11,9 - 12,0
RQVMW 49		0,21	10,4 - 10,5 11,5 - 11,6
		0,18	10,8 - 10,9
		7-	

Notes

(1) when n

rev/min and gauge pressure

bar (maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 RVI 8,8k

5. Edition

PES 6 MW 100/320 RS 1016 RQV 300-1300 MW 25 Komb.-Nr. 0 403 446 123

supersedes 11.82 RVI company MIDRO6.02-12 125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port-closing mark 10,5°

Rotational speed	Control rod traval mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1300	11,2+0,1	9,0-9,2	0,35(0,6)			
300	5,8-5,9	0,95-1,35	0,35(0,55)		
900	11,2+0,1		0,5 (0,7)			
500	10,0+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	1	Sliding s	leeve travel
deflection	rev/min Control rod travel mm	Control rod travel mm rev/min 2a	Degree of deffection of control lever	rev/miກ 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	1300 1600	15,2-17,8 0 - 1,0				ca. 13	200 300	max.7,5 5,9-6,0		
ca.62	10,2 4,0	l				340-600				
						(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 20 imitation intermediate speed	Fuel deliv	ery characteristics 58 peed 50	Starting Idle switchin		torque-	control 5 Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4 _	5	6	7	8	9
LDA .1300	0,67 bar 90,0-92,0 (88,0-94,0)	1345-1355*	LDA 900 LDA 500	0,67 bar 88,0-92,0 (86,0-94,0) 0 bar 59,0-61,0 (57,0-63,0)	100 300 100-2	min. 100,0 9,5 - 13,5 (7,0 - 16,0) 230 (80-250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Pump, governor	Setting	Measurement	Control rod travel- difference
	Gauge pressure - bar	Gauge pressure = bar	·mm (1)
RS 1016 mit Mw25	0,25	0,67 0 0,22	10,8 - 10,9 11,2 - 11,3 10,2 - 10,3 10,3 - 10,4
			:
		:	

Notes.

(1) when n =

revimin and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 RVI 8,8 f 2. Edition

Testoil-ISO 4113

PES 6 MW 100/320 RS 1016 RQV 300-1400 MW 25-2 supersedes -

1 - 5 - 3 - 6 - 2 - 4 * Start of delivery mark is 8° after MIDR 06.02-12 0 -60 -120-180-240-300 start of delivery at control-rod travel 10,5 mm MIDR 06.02-12

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings-

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	100 strokes	m m 2	cm ³ /100 strokes 3	mm 6
1409	11,1+0,1	9,1 - 9,3	0,35(0,6)			
300	5,8-5,9	0,95-1,35	0,35(0,55			
900	11,1+0,1		0,5 (0,7)	İ		
500	9,3+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	1	Stiding s	leeve travel
	rev/min Control rod travel mm	Control rod ta travel mm rev/min (28)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm 11
max.	1400 1650	15,2-17,8 0-1,0	-	-	-	ca.13	300 200	5,8-5,9 max.4,4	ļ	
ca. 62	10,1	1440-1450 1550-1580		<u> </u> 			490-	550 = 2,0		
						3a				

Torque control travel a =

mп

C. Settings for Fuel injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed (2b) limitation intermodate speed	Fuel deliv	rery characteristics (56) peed (50)	Starting Idle switchin	•	Torque- travel	Control (5)
rev/min	cm³/1000 strokes	rev/min 4a	rav/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min 8	travel mm
LDA 1400	0,5 bar 91,0-93,0 (89,0-95,0)	1440-1450*	LDA 900 LDA 500	0,5 bar d6,5-90,5 (84,5-92,5) 0 bar 53,5-55,5 (51,5-57,5)	100	94,0-104,0 (91,0-107,0) 230 (80-250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

revinin decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure b	ar Gauge pressure : bar	mm (1)
			!
RS 1016 with	0,12		9,8 - 9,9
RQVMW 25-2		0,16	10,6 -10,7
		0	9,4 - 9,5
		0,5	11,1 -11,2
		į	

Notes

(1) when n

rev/min and gauge pressure

bar (maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 IHC 7,6 L

3. Edition

PES 6 MW 100/320 RS 1108 ROV 350-1300 MW 45

0 403 446 140

Testoil-150 4113

supersedes_83 company IHC engine DT 466 B 143,5 kW

Test-pressure line

Nozzle-and-holder assembly 1 688 901 016 (207 + 3 bar)

 $1.680\,\,750\,\,008$ All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		(2,95-3,15)	mm (from BDC)	Control rod	Fuel delivery	Spring pre-tensioning
Rotational speed	Control rod trav al	Fuel delivery	Difference cm ³ /	travel	Puerosiivery	(torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	
900	11,7+0,1	9,55-9,75	0,35(0,6)			
350 1300 500	5,9-6,0 11,7+0,1 9,0-9,1		0,35(0,55) 0,65(0,7)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	ed		Lower rated	speed	1	Sliding s	leeve travel
	rev/min Control	Control rod (travel		Degree of deflection		Control travel	rod	Degree of deflection		Control rod travel		. ①
of control	rod travel	mm	. \ \	of conirol	rev/min	mm	(4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	7	4	5	6		7	8	9	10	11
max.	8,0 0,1	1440-1505 1550	5	-	-	-	•	ca.14	100 350	min.9,0 5,9-6,0		
ca.61,5		1360-1380						380-700				
± 2,5	4,0	1475-1485	5									
								3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) timitation intermediate speed	Fuel deliv		idle	fuel delivery 6	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	r6v/min 4	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strakes	rev/min 8	travel mm 9
LDA 900	0,9 par 95,5-97,5 (93,5-99,5)	1360-1380*	LDA 1300 LDA	0,9 bar 99,5-103,5 (97,5-105,5) 0 bar 52,5-54,5 (50,5-56,5)	350 220- 10	RW 19-21 140-180 (137-183) 16,0-20,0 (13,5-22,5) 280(210-290) 0 (80)	Lock: Unlo	ng king

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Testatn = 500	rev/min decreasing pressure - in- increasing	par gauge pressure	· - ·
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure - bar	Gauge pressure : bar	mm (1)
RS 1108 with MW 45	0,9		11,7 - 11,8
		0	9,0 - 9,1
		0,2	9,5 - 9,6
	1	0,57	11,2 - 11,3
	! !		
	!		
:			

Notes

(1) when n

rev/min and gauge pressure

bar (maximum full load control rod travel)

Notes:

- Carry out pump adjustment only with original overflow valve and IH hose with restriction of 1.2 mm diameter.
- Adjust locking prior to sleeve check.
- Do not drive at more than n = 500 1/min in unlocked condition.
- Set low idle at stop screw.
- Set shutoff stop 1.5 2.0 mm before stop.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 IHC 7,6 n

2. Edition

PES 6 MW 100/320 RS 1112 RQV 350-1300 MW 46 0 403 446 141 Test-pressure line 1 680 750 008

supersede9.83 company IHC DTI-466 C 154,5 kW

Nozzle-and-holder assembly 1 688 901 016 (207 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		4,00-4,10 3.95-4_15)	mm (from BDCR)	W = 9.0	- 12,0	
Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
900	10,5+0,	10,3-10,5	0,35(0,6)			
350	5,4-5,	1,8-2,2	0,35(0,55	()		
1300	10,5+0,	1	0,65(0,6)			
500	8,4+0,	1				
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated spe	ed	Lower rated	speed	1	Stiding s	eeve travel
Degree of deflection of control		Control rod travel mm rev/min 28	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	control rod travel mm 3	rev/min	mm 11
1	2	3	4	205	0	ca.14	100	min. 9,0		
max.	8,0 0 - 1	1440-1509 1600	ca. 21 <u>+</u> 2,5	595- 605	1,9-2,1	Ca.14	350	5,4-5,5		
ca.47,5 +2,5	4,0	1470-1480		435- 465	7,9-8,1	370-650				
						(3E)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil tem		Rotational-speed (2b) limitation intermediate speed	Fuel deliv high idle s	ery characteristics 50 pood 50	Starting i idle switchin		travel	Control (5) Control rot
rev/min cm³/1000 strokes		rev/min 4	rev/min	min cm ³ /1000 strokes		cm ³ /1000 strokes	rev/min S	mm 9
LDA 900	0,9 bar 103,0-105,0 (101,0-107,0)		LDA 1300 LDA 500	0,9 bar 107,0-111,0 (105,0-113,0) 0 bar 63,5-65,5 (61,5-67,5)	350	RW 19-21 140-180 (137-183) 18,0-22,0 (15,5-24,5) 180(210-290) (80)	Locki Unloc	

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Pump/governor	Setting	Measurement	diminution Control rod travel- difference	
	Gauge pressure = ba	Gauge pressure =	bar mm (1)	
ƙS 1112 mit MW 46	0,9 bar	0 0,28 0,51	10,5 - 10,6 8,4 - 8,5 9,0 - 9,1 10,0 - 10,1	
		:	:	

Notes (1) when n =

revimin and gauge pressure =

par i = maximum full-load control rod travel)

= Notes:

- Set pump only with original overflow valve and IH hose with restriction 1.3 mm diameter.
- Before testing the sleeve position, first set interlock.
- When unlocked, n = 500 1/min is maximum speed.
- Set low idle at stop screw.
- Set shutoff stop 1.5 2.0 mm before shutoff.

Testoil-150 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 PER 8,8 f

1. Edition

PES 8 MW 100/720 RS 1113

ROV 250-1400 MW 37-2

0 403 448 119

1 - 8 - 7 - 5 - 4 - 3 - 6 - 2 0 - 45- 90-135-180-225-270-315

supersedes_

company Perkins

TV 8.5 40 M

242 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

FB mark is at RW 10.5 mm

after FB and 17° NW

A. Fuel Injection Pump Settings 3.00-3.10

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve mm 6	
1400	13,8+0,1	11,9-12,1	0,35(0,6)				
250	8,2-8,3	1,4-1,8	0,35(0,55)			
900	13,8+0,1		0,5 (0,7)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

ſ	ipper rated s	paed		Intermedia	ite rated sp	ee d	Lower rated	speed	1	Sliding s	ieeve travel
1	eflection	rev/min Control	travei	Degree of deflection of control	1	Control rod travel	Degree of deflection of control		Control rod travel		1
		rod travel mm	rev/min (3	lever	rev/min	mm 4	lever	rev/min	mm (3)	rev/min	m m
!	1	2	3	4	5	6	7	8	9	10	11
	max.	1400 1600					ca. 15	100 250	min.9,7 8,2-8,3		
	ca. 64	12,8 4,0					270-500				
							(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed 20 limitation intermediate speed	Fuel delivingh idle s	rery characteristics (50)	Starting Idle switchin		Torque- travel	Control 5 Control rod
rev/min cm³/1000 strokes		rev/min	rev/min	cm ³ /1000 strokes	rev/min cm³/1000 strokes		rev/min	mm
1	2	3	4	5	6	7	8	9
1400	119,0-121,0 (117,0-123,0		900	115,0-119,0 (112,5-121,5) 250	(87,0-103,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications **Fuel Injection Pumps** and Governors

PEN 7,0 b WPP 001/4

4. Edition

En

PE 6 P 110 A 320 RS 260

EP/RSV 250-1250 P0/374/2 R

supersed40.78 companyVolvo-Penta engine THAMD 70 B

RS 260 Y

All test specific ations are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.8 + 0.1

 $_{\text{mm (from BDC)}}$ (Checking tolerance $_{-0.05}^{+0.15}$)

			0,00				
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)	
rev/min	mm	cm ² /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm	
1	2	3	4	2	3	6	
1000	12	14,3 - 14,8	0,6			2,5 + 0,1 **	
500	9 12 15	8,0 - 9,2 14,7 - 16,4 20,2 - 22,3				(max. 2,2-2,9)	
250	6	0,9 - 1,3	0,25				

Adjust the fuel delivery from each outlet according to the values in [

** In case valve-spring spread is higher, change the initial tension accordingly.

B. Governor Settings

Upper	Upper rated speed			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	revimin	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel	
1	2	3	4	5	6	7	8	9	10	11	
ca.47	1250 1300	16,0				ca.19	250	6,0	-	-	
	1330	10,3 6,3	without	auxo	liary spri	nq	100 250	19-21 5,7-6,3			
5	1300 1360 1460	9,5-12,0 3,2-5,5 0,3-1,0	1		ry spring		400 560	1,7-3,9 0 - 1			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat		delivery racteristics	Starting Idle	fuel delivery	5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note changed to rev/min	rev/min cm³/1000 strokes 4 5		rev/min	cm ^{3/1} 000 strokes 7	rev/min 8	Control rod travel mm 9
260 1000	LDA 1,2 bar 149,0-152,0	1295-1305*	LDA 1000	0 bar 76,0 - 81,0	100 250	160 - 190 11 - 15 ug. max. 2,5) * *	
(incre	ase by 3,0 cm)			Stre	ug. IIIax. 2,5		./.

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	cev/min Control rod travel mm rev/min 3	Interme	ediate rated	speed	Control- lever deflection in degrees 7	Lowe rev/min 8	r rated speed Control rod travel mm	rev/min	rque control Control rr2d travel mm
ca.47	1250 1300 1330	16,0 10,8 6,8	without auxilian spring			ca.19	250 100	6,0 19 - 21 5,7-6,3 1,7-3,9 0 - 1	-	-
20	1300 1360 1460	9,5-12,0 3,2- 5,5 0,3- 1,0	with auxiliary spring		16	250 400 560				

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational- speed limitat		el delivery aracterístics	Starting fuel delivery 5		4a Idle stop	
rest oil temp 40°C (104°F) rev/min cm³/1000 strokes		Note: changed to) rev/min rev/min cm ³ /10		cm ³ /1000 strokes	rev/min	cm ² /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
	LDA 1,2 bar		LDA	N bar				
					100	160-190		
260Y				di	250 spersi	11- 15 on max. 2,	5 **	
1000	138,0-140,0	1295-1305*	1000	86,0-89,0				

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure + bar	mm (1)
260 with 374/2R	0,78 - 0,81	min 0,04	
260Y with 374/2R	1,00 - 1,03	0,14 - 0,27	

Notes

(1) when n =

rev/min and gauge pressure

bar (" maximum full-load control rod travel)

En

^{* 1} min less control rod travel than col 2

Test Specifications Fuel Injection Pumps 1 NPP 001/4 MAN 11,4 a and Governors

4. Edition

PES C P 120 A 320 LS 429

ROV 250-1100 PA 582 (1)

supersedes83

Komb.-Nr. 0 402 046 223 (1)

RQ 250/1100 PA 581 (2)

D2566 MKUL engine 235 kW (320 PS)

0 402 046 222 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC) Zy1.6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
750	12,9 +0,	22,0 - 22,4	0,5(0,9)			1
250	6,2-6,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

RQV .. PA 582

Upper rated s) 1	0	_	Intermediate	rated spe	eed Control rod	Lower rated Degree of	speed	Control rod	Sliding sleeve t		
deflection of control		Control rod travel mm rev/min	(1a) (2a)	deflection of control lever	rev/min	travel 4	deflection of control lever 7	rev/min 8	travel mm 3 9	rev/min 10	mm 11	
max.	1100	15,2-17	7,8				ca. 13	ļ	1	1	1,6-1,7	
ca. 68	10,4 4,0 1400	1225-1		•			355-47	!	6,2-6,4	500 800 1100	4,0-4,3 5,5-5,7 8,1	
	•						(3a)	<u> </u>				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil ten	stop	Rotational-speed 20 limitation intermediate speed	Fuel delivingh idle s		Starting Idle switchir		Torque- travel	Control rod
rev/min		rev/min 4a	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1 000 strokes 7	rev/min 8	travel mm s +0,1
LDA 750	1,0 bar 220,0-224,0 (217,0-227,0)	1140-1150*	LDA 1100 650 LDA 500 LDA	212,0-218,0 0,29 bar 138,0-144,0 0 bar	230		1 750	12 . 9 12 . 5

Checking values in brackets

* 1 mm less control rod travel than col. 2

to.83

*Checking tolerance ± 3 cm³

Geschaftsbereich KH. Kundendienst, Kfz-Ausrustung. C by Robert Bosch Gmöhl, D-7 Stuttgert 1, Posifach 50. Printed in the Federal Republic of Germany Imprime on Republique Federale d'Allemagne par Robert Bosch GmbH.

Sheskin PAG (hii	auts der	F. Nas Sermas			citications	4 s	tie sper letting c		Test spe	· 11/200 5	Torque	3
رور مرد د	Control rod (1) travel (mm)	rev min	(, to) 33 mas (mm 4	Cantrol Coat Make Minn S	revinin	•	ės mo	lach Inches Imm		Olomo no : O Imave Imm	., .9, m.c	Trave:
600	19,2-20,	8 600	20,0		1145-1 1185-1		250	6,3	100 250			11,4-11,5
VH =	max. 46°		!	1300	,	į				3 7 5=2,0mm	925	12,5-12,7
				:				: :			<u> </u>	
	gotros travel	n n n n n	0,5	5		Snee:	: fecure	tion 11	45 -	1160 min ⁻¹		itimm less contro rod trave

C. Settings for Fuel Injection Pump with Fitted Governor

, governor	deliveryich controlllever emp 40.0 104.5	Control and stop	File deliv		Starting 1.	er delivery : Junto
revimin Lit	cm >1000 strakes	Jepy min	rev min	₹ cm = 1000 strokes 5	n •ev-m·n	ind travel cm = 1000 strokes / mm =
LDA 750	1,0 bar 220,0 - 224,0 (217,0 - 227,0)	-	LDA 1100 650 LDA 500 LDA 500	1,0 bar 185,0 - 191,0 212,0 - 218,0 0,29 bar 138,0 - 144,0 0 bar 115,0 - 119,0		215,0-235,0

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n : 500 rev min increasing pressure - in par gauge pressure

: 536 36 11	increasing		
Pump governor	Setting	Measurement	XXXXXXX _{tion} Cantrol rad t xxx XXXXX _e
	Gauge pressure par	Gauge pressure bar	mm (3)
LS 429 mit RQVPA 582 und RQPA 581	1,0	0 0,29 0,58	12,9 - 13,0 9,6 - 9,7 10,5 - 10,6 12,3 - 12,5

Notes

(1) when n =

revimin and gauge pressure in

bar (= maximum full-load control rod travel)

Εn

^{*} Checking tolerance \pm 3 cm³

WPP 001/4 MAN 11,9 a 2

1. Edition

PES 6 P 120 A 720 LS 470-1

RO 250/1100 PA 679

Komb.-Nr. 0 402 046 289

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

D2866 KUL 265 kW

tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.75-2.95)

mm (from BDCZyl. 6; RW=9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery		Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm 6
1	40.7.0	4 22 0 22 2	0,5(0,9)	12	3	
750	12,7+0,	1 23,0-23,2	0,5(0,9)			
250	5,4-5,	6 1,2-1,8	0,8(1,2)			
						į Į

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider					Full-load speed regulation Idle speed regulation Setting point Test specifications Setting point Test sp						Torque	control (3)
	Control rod travel mm 2	rev/min	Control red travel mm	Control rad travel mm	rev/min	rev/min 7	Control rod travel	rev/min	Control rod	rev/min	travel		
600 VH= m	19,2-20,8 ax. 46°	600	20,0	10,9 4,0 1350	1145-1160 1185-1215 0-1,0		5,5	250	-, -,-	1100 975	12,7-12,8 11,9-12,0 12,3-12,5 11,7-12,0		
	control travel	<u> </u>	0,4	İ		<u> </u>		45-11	60 min 1	<u> </u>	1 mm less contro		

on flyweight assembly dimension a =

rod travel

C. Settings for Feel Injection Pump with Fitted Governor

Invery on introl lever 0, 40°C (104°F)	Control rod stop 3a	Fuel delive	/ ~ .\	. •	uel delivery d : Contra
cm³/-1000 strokes 2	rey/min 3	rev/min	cm ³ /-1000 strakes	rev/min	om ³ /1000 strokes-/ mm
1,0 bar 230,0-232,0 (227,0-235,0)	_	LDA 500	0,4 bar 182,0-188,0 (179,0-191,0)	100	225,0-245,0 (221,0-249,0)
1,0 bar 218,0-224 0 (215,0-227,0)		LDA 500	0 bar 128,0-130,0 (125,0-133,0)	250	12,0-18,0 (9,0-21,0)
0	1,0 bar 230,0-235,0) 1,0 bar 21000 strokes 210,0-232,0 (227,0-235,0) 1,0 bar 218,0-224.0	1,0 bar 230,0-235,0) 1,0 bar 218,0-224.0	1,0 bar 230,0-232,0 (227,0-235,0) 1,0 bar 218,0-224 0 500	1,0 bar 230,0-232,0 (227,0-235,0) 1,0 bar 218,0-224 0 (20,000000000000000000000000000000000	Com ³ /-1000 strokes rev/min cm ³ /-1000 strokes rev/min cm ³ /-1000 strokes rev/min cm ³ /-1000 strokes rev/min 6 cm ³ /-1000 strokes cm

Checking values in brackets

MAN 11,9 a 2 revimin increasing pressure - in par gauge pressure Test at n -500 giminution Measurement Control rod travel difference Setting Pump/governor (1) par Gauge pressure par mm Gauge pressure -12,7-12,8 9,4-9,5 11,2-11,3 9,9-10,3 PES 6 P..LS 470-1 +RQ..PA 679 1,0 0,40 0,19

Notes (1) when n =

revimin and gauge pressure =

bar (= maximum full-load control rod travel)

-2-

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 19,1 k

4. Edition

PF 12 P 110 A 320 LS 832

RQV 350-1150 PA 476 R

supersedes 4.82

Komb.-Nr. 0 401 840 060

Daimler-Benz OM 404 A

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12 0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Centrol rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	12,8+0,1	13,4-13,6	0,4(0,8)			
350	7,4-7,6	1,4-2,0	0,4(0,7)			
				}		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated : Degree of deflection of control lever	rev/min Control rod travel	travel	Degr	ee of ction introl	rated spe rev/min 5	Control ro travel mm	od 4	Lower rated Degree of deflection of control lever 7	rev/min	Control travel mm 9	rod 3	Sliding s rev/min 10	mm
max.	1150	15,2-17,3 1185-119 1295-132 0-1,0	5 5	-	-	-		ca.18		min.8 7,0-7 75 = 2	7,2	580	0,9-1,1 3,5-3,8 5,2-5,5 7,8
								(3a)					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 20 limitation intermediate speed	Fuel deliv	peed (5b)	Starting Idle switchin	•	Torque- travel	Control rod	
rev/min	cm³/1000 strokes	rev/min 4a	rev/inin	ev/inin cm³/1000 strokes		cm ³ /1000 strokes 7	rev/min 8	mm 9	
LÙA	0,7 bar 134,0-136,0 (131,5-138,5)	1185-1195*	LDA 500 LDA 700	0 bar 122,0-124,0 (119,0-127,0) 0,7 bar 136,0-140,0 (133,0-143,0)	100	130,0-150,0 126,0-154,0)	700 970	12,8+0, 13,1+0, 13,0+0, 12,8+0,	

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.83

Testoil ISO 4113

MB 19,1 k

Pump/governor		Setting			Measurement		Contro	rod trave	aiminution difference	
		Gauge pre	essure =	bar	Gauge pressure =	bar	mm	(1)		
PE 12 P	15 832		0,70				-	13,1	- 13,2	
+ RQVPA			0,		0			12,4	- 12,5	
+ KUVFA	470 K				0,39			12,9	- 13,0	
					0,31			12,5	- 12,7	
i										
·					:		:			
							1			
•							:			

Notes (1) when n -

revimin and gauge pressure #

par the maximum full-load control rod travell

Testoil-ISO 4113

WPP 001/4 MAN 20,9 e 2

1. Edition

PE 12 P 110 A 520 LS 838 Komb.-Nr. 0 401 840 076

RQ 250-950 PA 583

supersedes-

company MAN

D 2542 MTE

1-5-9-8-3-4-11-10-2-6-7-12 $0-15-60-75-120-135-180-195-240-255-300-315^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.95-3.15)

mm (from BDC)ZV1 _ 12

Rocational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm !6
880	11,4+0,	15,4-15,6	0,4(0,8)			
250	3,8-4,0	1,3-1,9	0,4(0,7)			
	•					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che	\	1)	Full-load : Setting po	oint	Test spec	cifications (4)	Idle spec	-		cifications 5	Torque d	Control rod
rev/min	Control rod travel mm 2	_	rev/min	rod travel	Control rod travel mm 5	rev/min 6	rev/min 7	rod travel	rev/min	travel mm 10	rev/min 11	travel mm 12
550	15,6-16,	4	550	16,0		925-940 965-995 0-1,0	250	3,9	250	min.5,4 3,8-4,0 30 = 2,0	880 550	11,4-11,5 11,4-11,6
												1

Torque-control travel on flyweight assembly dimension a =

965-995 min 1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of governor of Test oil ter	control lever	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	Control
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes 5	rev/min	cm ³ /1000 strokes/mm
880	154,0-156,0 (151,0-159,0)	-	-	-	100	150,0-170,0 (146,0-174,0)

Checking values in brackets

Testoil 150 412

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MAN 17,4 a 2

1. Edition

PE 10 P 110 A 520/4 LS 846 Komb.-Nr. 0 401 849 171

RQ 250/1150 PA 659-1

supersedes - MAN

KOIND.-NY. U 401 849 171

1-8-7-6-3-5-2-10-9-4 0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°) D 2540 MT angine 323 kW (439 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,95-3,15)

mm (from BDC)Zy1. 10

Rotational speed	Control *od travel	Fuel delivery	Difference	Control rod travel	Fuel gelivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1150	11,9+0,1	14,0-14,2	0,4(0,8)			
250	6,9-7,1	1,1-1,7	0,4(0,7)		1	
					İ	
		? !				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider	Full-load	•	•		Idle spec	•		cifications (5)	Torque	control (3)
rev/m:n 1	Control rod travel	rev/min	Control rod travel mm	Control rod travel mm	rev/min 6	rev/min	Control rod travel	!	Control rod travel	rev/min	Control rod travel
600 VH =	19,2-20,8 max. 46°	600	20,0	10,9 4,0 1450	1195-1210 1300-1330 0-1,0	i e	7,0	250			11,9-12,0 11,9-12,1
Torque-c	ontroi travel		0				11	95-12	10 min		1 mm less control

on flyweight assembly dimension a = mm Speed regulation At

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on Fuel delivery characteristics Starting fuel delivery governor control lever Test oil temp. 40°C (104°F) idle speed cm³/-1000 strokes cm3/-1000 strokes rev/min cm³/1000 strokes/mm rev/min rev/min rev/min 145,0-175,0 100 0.9 bar 0,9 bar LDA LDA 134,0-138,0 750 1150 140,0-142,0 (137,0-145,0) (131,0-141,0) LDA 0 bar 115,0-118,0 500 (112,0-121,0)

Checking values in brackets

MAN 17,4 a 2

- 2

Pump:governor	Setting		Measurement		Control rod trave	diminution difference	
	Gauge pressure =	bar	Gauge pressure =	par	mm (1)		
PE 10 PLS 846	0,90				11,9	- 12,0	
+ RQPA 659-1			0		11,1	- 11,2	
			0,38		11,7	- 11,8	
			0,33		11,3	- 11,5	
					,		
					!		

Notes

(1) when n =

revimin and gauge pressure =

bar (in maximum full-load control rod travel)

D9

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 17,4 a 4 1. Edition

<u>En</u>

PE 10 P 110 A 520/5 LS 846 Komb.-Nr. 0 401 849 181

RQV 250-1000 PA 677

company MAN
D 2540 MTF 360

287 kW

1-8-7-6-3-5-2-10-9-4

 $0-27-72-99-144-171-216-243-288-315^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1Porticiosing at prestroke (2.95-3.15) mm (from BDC) Zy 1. 10; RW = 9,0-12,0 mm

FOR Closing at pres	()	2.95-3.13 <i>1</i>				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	13,1+0,1	16,3-16,5	0,4(0,75)]
250	6,9-7,1	1,2-1,5	0,45(0,75			
	1	}		1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	rated spe	eed	Lower rated	speed	1	Sliding s	leeve travel
Degree of deflection	rev/min Control	Control rod (a)	Degree of deflection		Control rod travel	Degree of deflection	<u> </u>	Control rod travel		ı ①
of control lever	rod travel	mm rev/min 28	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	mm 11
1	2	3	4	5	6	7	8	9	10	
max.	1080	15,2-17,8	-	-	-	ca.12		min.8,5 6,9-7,1		2,0-2,5 6,5-6,7
ca.63	11,2 4,0 1300	1040-1050 1170-1200 0-1,0						460=2,0	1000	7,8
						(3a)				

Torque control travel a =

- mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed 2b timitation intermediate speed	Fuel deliv	ery characteristics 5a	Starting Idla switchin	•	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1 000 strokes 7	rev/min 8	travel mm
LUA 700	1,0 bar 163,0-165,0 (160,5-167,5		LDA 1000 LDA 500	1,0 par 149,0-153,0 (146,0-156,0 0 bar 105,0-107,0 (102,5-109,5)	<u>-</u>	-	-

Checking values in brackets

1 mm less control rod travel than col. 2

MAN 17,4 a 4

- 2 -

Pump/governor	Setting	Measurement	diminution Control rod travel difference	
	Gauge pressure =	par Gauge pressure =	bar mm (1)	
PE 10 PLS 846	1,0		13,1 - 13,2	
	.,,,,	. 0	10,4 - 10,5	
+ RQVPA 677	i	0,46	12,5 - 12,6	
	:	0,23	11,0 - 11,4	
	:	:		
	:		•	
	•	: :		:
		!		

Notes

(1) when n =

revimin and gauge pressure =

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 17,4 a 3

1. Edition

PE 10 P 110 A 520/5 LS 846 Komb.-Nr. 0 401 849 180

ROV 250-1150 PA 673

supersedes company MAN

1-8-7-6-3-5-2-10-9-4 0-27-72-99-144-171-216-243-288-315° ± 0,50° (± 0,75°) engine D 2540 MT 323 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rad travel	2,05=3,15) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	cm ³ /100 strokes	6 6
1150	11,9+0,1	14,0-14,2	0,4(0,8)			
250	6,9-7,1	1,1-1,7	0,4(0,7)			
	<u> </u>					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediat	e rated sp	eed	Lower rated	speed	1	Sliding s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control red travel mm rev/min (2)	of control	rev/min	Control rod travel mm 4	Degree of deffection of control lever	rev/min	Control rod travel mm 3	rev/min	mm 11
max. ca.65	1170 10,9 4,0	15,2-17,8 1190-1200 1310-1340 0-1,0		-	-	ca.12		min.8,5 6,9-7,1 460=2,0		2,0-2,5 6,5-6,7 8,4
	1459	0-1,0				38				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten			Fuel deliv	ery characteristics 58 peed 50	Starting Idle switchin	•	travel	Control (5) Control rod
rev/min	cm ³ /1000 strokes	rev/min 48	rev/min	cm³/1000 strokes S	rev/min	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1150	0,9 bar 140,0-142,0 (137,0-145,0		LDA 750 LDA 500	0,9 bar 134,0-138,0 (131,0-141,0 0 bar 115,0-118,0 (112,0-121,0)	145,0-175,0 (141,0-179,0		<u>-</u>

Checking values in brackets

* 1 mm less control rod travel than col. 2

MAN 17,4 a 3

- 2

Pumpigovernor	Setting	Measurement	Ċ	Control rod traveligifference		
	Gauge pressure =	bar Gauge pressure =	bar	nm (1)		
PE 10 PLS 846	0,90			11,9 - 12,0		
+ RQVPA 673		0		11,1 - 11,2		
i iiqii ii ii	:	0,38	}	11,7 - 11,8		
		0,33	1	11,3 - 11,5		
			1			
	;		:			
:	:	- -				
!	<u>.</u>	ţ	İ			

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

D13

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 20,9 q 1

1. Edition

PE 12 P 110 A 520/4 LS 848

ROV 250-1200 PA 668-4

supersedescompany MAN

Komb.-Nr. 0 401 840 094

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12 0-15-60-75-120-135-180-195-240-255-300-315° ±0,5°(±0,75°)

D 2842 ME 338 kW

Schiff

All test specifications are valid for Bosch Fuel Injection Fump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strok es 3	mm 6
1200	11,9+0,	12,5-12,7	0,4(0,8)			
250	7,0-7,2	0,9-1,5	0,4(0,7)			
}						

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	eed		Lower rated	speed	1		Sliding sl	eeve travel
aeflection	rev/min Control rod travel mm	travel		Degree of deflection of control lever	rev/min	Control ro travel	(4)	Degree of deflection of control lever	rev/min	Control roo	3	rev/min	mm
1	2	3	Θ_{i}	4	5	6	\cup	7	8	9		10	11
max.	1330	15,2-17	,8	_	-	_		ca.12		min.8,6 7,0-7,6			1,9-2,3 5,6-5,8
ca. 61	10,9 4,0 1500	1240-12 1365-13 0-1,	95					425-550				1200	7,4
<u> </u>								(3a)					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 58 poeed 50	Starting Idle Switchin	. —	Torque- travei	Control 5 Control rod travel	
rev/min	cm ³ /1000 strokes	rev/min 4a	ten/win	cm ³ /1000 strokes	tea/wit	cm ³ /1000 strokes	rev/min		
1	2	3	4	5	6	7	8	9	
1200	125,0-127,0 (122,0-130,0		-	-	100	150,0-170,0 (146,0-174,0		في 😓	
					250	9,0-15,0 (6,5-17,5)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MAN 17,4 b 6

1. Edition

PE 10 P 110 A 520/5 LS 850

Komb.-Nr. 0 401 849 173

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ± 0.5 °(± 0.75 °)

supersedes

MAN company

D 2540 MTE engine 274 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump, Settings

Port closing at prestroke

(2.95-3.15)

mm (from BDC) Zy1. 10; RW=9,0-12,0 mm

		(4,00 0,.0)		-j , , , , , , , , , , , , , , , , ,		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
850	13,1+0,	1 15,3-15,6	0,4(0,7	5)		_
250	6,9-7,	1 1,1-1,6	0,45(0,	7 5)		
		:				
1						

RO 900 PA 663-2

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking	g of slider	Full-load	•	Test spec	cifications (4)	ldle spec	point		critications 5	Torque o	control Control rod
	Control rod travel mm	rev/min	Control rod travel rnm 4	Control rod travel rnm 5	rev/min 6	rev/min 7	Control rod travel mm	rev/min	travel	rev/min 11	travel mm 12
-	-	-	-		900-905 932-946 0-1,0	-	-	-	-	-	-
											,
Torque-c	control travel		•				9	00-90	5 min ⁻¹		1 mm less contro

Torque-control travel on flyweight assembly dimension a

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor o Test oil ten	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics (3b	Starting t	Contra
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	rod travel cm³/1000 strokes / mm 7
850	153,0-156,0 (150,5-158,5)	-	-	-	-	-

Checking values in brackets

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 17,4 b 4

1. Edition

PE 10 P 110 A 520/4 LS 850 Komb.-Nr. 0 401 849 176

ROV 250-1150 PA 668-5

supersedes

CENT ON THE

1-8-7-6-3-5-2-10-9-4

0-27-72-99-144-171-216-243-288-315° $\pm 0,5$ °($\pm 0,75$ °)

companyMAN engine D 2540 MTE 323 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC) Port closing at prestroke

Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control yalve)		
mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6		
11,9+0,1	14,1-14,3	0,4(0,8)					
6,9-7,1	1,1-1,7	0,4(0,7)					
	11,9+0,1	mm cm ³ /100 strokes 2 3 11,9+0,1 14,1-14,3	travel cm ³ /100 strokes cm ³ /100 strokes 100 strokes 2 3 4 11,9+0,1 14,1-14,3 0,4(0,8)	travel cm³/100 strokes cm³/ 100 strokes cm³/ 100 strokes cm³/ 100 strokes cm³/ 100 strokes cm³/ 100 strokes cm³/ 100 strokes cm³/ 100 strokes cm³/ 100 strokes cm³/ 100 strokes cm³/ 100 strokes cm²/ 100 strokes	cm ³ /100 strokes cm ³ /100 strokes 2 cm ³ /10		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		1	Intermediate	rated spe	se d	Lower rated	sp ec d	ı	Sliding sl	Sliding sleeve travel	
Degree of deflection of control lever	rev/miñ Control rod travel mm	travel .		Degree of deflection of control lever	rev/min	control rod travel mm 4	Degree of deflection of control lever	revimin 8	control rod travel mm 3	rev/min	mm 11	
max.	1160	15,2-17	,8	<u>.</u>	-	-	ca.12	1	min.8,5 7,2-7,4	1	2,0-2,5 6,8-6,9	
ca. 65		1190-120 1310-134 0-1,0	0						65=2,0	1150	8,4	
			Ì				(3a)					

Torque control travel a =

C. Settings for Fuel injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	d stop	Rotational-speed 2b limitation intermediate speed	Fuel deliv	ery characteristics (5a)	Starting Idle switchir	•	Torque-control (! travel Control r	
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1150	141,0-143,0 (138,0-146,0)	1190-1200*	-	-		-	-	-

haftsberaich KH. Kund≥ndienat. Kfz-Ausrustung Robert Bosch GmbH. 0-7 Stuttgart 1. Postfach 50. Printed in the Federal Republic of Germany me en Republique Federale d'Allemagne par Robert Bosch GmbH.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 17,4 b 5 1. Edition

En

PE 10 P 120 A 520/S LS 850

Port closing at prestroke

lestoil ISO 41

RQV 250-1150 PA 668-6

supersedes compaMAN

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4 0-27-72-99-144-171-216-243-288-315° $\stackrel{+}{-}$ 0.5° ($\stackrel{+}{-}$ 0.75°) Values only apply to test nozzle-and-holder engine D 2540 MLE 405 kW

assembly 1 688 901 019 and fuel-injection test

Komb.-Nr. 0401849177

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1 (2,95-3,15) mm (from BDC) Zyl. 10

Rotational speed	Control rod travei	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1150	11,2+0,1	18,5-18,8	0,5 (0,9)			
250	6,2-6,4	1,2-1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leave travel
	rev/min Control	Control rod (1a)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		
	rod travel	mm rev/min (28	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	}
1,	2	3	4	5	6	7	8	9	10	11
max.	1230	15,2-17,8	-	-	-	ca. 11	100 250	min.7,8 6,2-6,4	350 750	2,0-2,5 5,2-5,6
ca. 59	10,2 4,0 1400	1190-1200 1260-1290 0 - 1,0						40 = 2,0	1	7,5-7,9 8,8 I
<u> </u>						(3a)				<u> </u>

Torque controi travel a =

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2) irmitation intermediate speed	(30)		Starting Idle switchir	. •	Torque- travei	Control rod
rev/min	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	1,0 bar 185,0-188,0 (182,0-191,0		500	0 bar 119,0-122,0 (116,0-125,0)		205,0-225,0 (201,0-229,0)	-	-

Checking values in brackets

*1 mm less control rod travel than col. 2 12.83

rev/min and gauge pressure =

(1) when n =

Pumpigovernor	Setting	Measurement	Cor	diminution ntroi rod traveli- difference	
	Gauge pressure	bar : Gauge pressure #	bar mn	n (1)	
PE10P LS 850 +RQV PA 668-6	1,0	0 0,65 0,54		11,2-11,3 9,6-9,7 10,8-10,9 10,0-10,3	
		; ;	:		
		:	· :		

bar (= maximum full-load control rod travel)

D18

Test Specifications Fuel Injection Pumps (MPP 001/4 MAN 17,4 b 7 and Governors

1. Edition

PE 10 P 110 A 520/5 LS 850 Komb.-Nr. 0 401 849 178

RQV 250-1150 PA 670-1

supersedes_

company MAN

D 2540 MTE engine 323 kW

1-8-7-6-3-5-2-10-9-4 0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
1150	11,9+0,1	14,0 - 14,3	0,4 (0,75			
250	7,0-7,2	1,1 - 1,6	0,45(0,75			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
deflection of control	rev/min Control rod travel mm	Control rod travel mm rev/min	(1a) (2a)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm 11
max. ca. 65	1170 10,9 4,0	1310-13	00 40	-	-	-	ca. 12		min.8,6 7,0-7,2 460 = 2,0	900	2,0-2,5 6,8-6,9 8,4
	1450	0 - 1,	U				(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil tem		Rotational-speed 2b limitation intermediate speed	Fuel deliv	ery characteristics 58 peed 50	Starting Idle switchir	. •	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 140,0-143,0 (137,5-145,5)	1190-1200 *	LDA 500	0 bar 115,0-117,0 (112,5-119,5)	-	-	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.83

Testoitist 4113

MAN 17,4 b 7 - 2 -

Pumprgavernor	Setting			Measurement		Contra	giminution gifterence	
	Gauge pre	essure :	par	Gauge pressure -	bar	mm	(1)	
PE 10 P LS 4 + RQV PA 67		0,7		0 0,38 0,34			11,9-12,0 11,0-11,1 11,6-11,7 11,2-11,4	
					;			

Notes

(1) when n =

revimin and gauge pressure =

parit = maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 IHC 13.4 e

1. Edition

En

PES 6 P 110 A 420 LS 3037

EP/RSV 350-1050 P2/425 DR

Values only apply to test nozzle-and-holder assembly 1 688 901 016 and fuel-injection test tubing 9 681 271 027 company IHC DTI-817 C

All fest specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Suction-gallery pressure 2,8 bar

Porticiosing at prestroke

restoil-180 4113

(1,95-2,15)

mm strom BDC.

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuer derivery	Spring pre-tensioning torque-control valver
revimin	mm 2	cm·/100 strokes	cm 100 strokes 4	mm 2	cm 190 strokes	mm 6
1050	11,3+0,1	19,9-20,1	0,4			
350	4,6-4,7	2,0-2,5				

** With control lever in end position: increase speed until 4 mm control-rod travel is reached. Then adjust idle spring so that it maskes contact and screw out by one turn.

Adjust the fuel delivery from each outlet according to the values in \Box

B. Governor Settings

(1) Jope	er rated speed	rev/min	Interm	ediate rat	ea speed	(4)	r.)wı	er rated speed	(3) to	rque controi
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	1	5	6	Control lever deflection in degrees 7	rev:min	Control rod travel mm	revimin	Control rod travel mm
lose	800	0,3-1,0	-	-	•			**	1050	11,3-11,4
						ca. 21	100 200	20,0-21,0		12,1-12,3
ca.45	10,3 4,0 1300	1090-1100 1145-1175 0,3 - 1,7					350 390-420	4,6		

the numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	al-load stop	6 Aotational- speed limitat	Gae derivery characteristics		Starting t			
Test on to	emp 40 C (104 F) cm: 1000 strokes 2	Note changed to revimin	revimin	cm: 1000 strokes	rev min	om 1000 strokes	:evimin 8	Control rod travel mm
LDA 1050	0,8 bar 199,0-201,0 (197,0-203,0)	1090-1100*	LDA 750 LDA 800	0,8 bar 202,0-208,0 (199,0-211,0) 0 bar 145,0-153,0 (142,0-156,0)	100 350	180,0-205,0	1	-

Checking values in brackets

1 mm less control rod travel than col. 2

Geschäftsbereich KH. Kundandienst. Kfz. Ausrüstung. 1980 by Robert Bosch GmbH. Postfach 50: D. 7000 Stuffgart f. Printed in the Federal Republic of German , Imprime en Republique Federale d. Allemagne par Robert Bosch. GmbH.

Komb.-Nr. 0 402 076 710

IHC 13,4 e

- 2 -

revimin decreasing pressure - in par gauge pressure Test at nii-800 aiminution Setting Measurement Pump governor Control rod travelaifference bar Gauge pressure = par mm (1) Gauge pressure = Suction control-rod travel + 0,5 mm 0,19 - 0,25PES6P..LS3037 EP/RSV..P2/425DR 0,49 - 0,52 10,8 - 10,9

Notes

(1) when n =

rev/min and gauge pressure =

par i = maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 f! 2. Edition

בת

PE 6 P 120 A 320 RS 3071

ROV 250-1025 PA 371

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

supersedes 2.81 company Volvo engine TD 120 GA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Caeqa lanoitator	Control rod	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
ev/min	mm 2	cm ³ /100 strokes	100 strokes	mm 2	cm ² /100 strokes 3	mm 6
700	11,4+0,1	20,5-20, 8	0,5(0,9)			_
250	5,6-5,7	2,2-2,6	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Sattings

Upper rated s	iceed		intermediate	rated Sp	ed .	Lower rated	sp ee d	ı	Sliding s	leeve travel
		Control rod travel mm 22	Degree of deffection of control lever	rev/miñ	Control rod travel mm 4	Degree of geffection of control lever	revimin 8	Control rod travel	revimin 10	mm • 1
1	2	3	*					i		
max.	1100	15,2-17,8	-	-	-	ca.12	100	min.7,1	250	1,1-1,2
ca.40		1065-1075					250	5,6-5,7		2,9-3,3
	1	1145-1175							1025	7,2
İ	1300	0 - 1,0				(3a)				
ĺ	ł	1				(30)	<u>. </u>		<u> </u>	<u> </u>

Torque control travel a =

ШШ

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil terr		Rotational-speed 20 limitation intermediate speed	Fuel delivingh idle s	rery characteristics(50) poed (50)	Starting tdle switchir	W 44 / _	Torque- travel	Control cod
rev/min	cm³/1000 strokes	revimin 4	rev/min	cm ³ /1000 strokes	rev/min	cm3/1000 strokes	(SA)WIU	mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 205,0-208,0 (202,0-211,0	1065-1075*	LDA 700	0 bar 157,0-161,0 (154,9-164,0)	100	230,0-270,0 =RW 20,0- 21,0 mm	· -	<u>-</u>

Checking values in prackets

* 1 mm less control rad travel than col 2

tatn -	500	rev min increasing pressu	re - in bar gauge pressure	
ump-governor		Setting	Measurement	diminution Control rod travely difference
		Gauge pressure	par Gauge pressure	bar mm (1)
PE 6 P +ROV		0,57	0,90 0 0,33	11,0-11,1 11,4-11,5 9,0-9,1 9,9-10,1

votes

(1) when n

revimin and gauge pressure =

par 🕾 maximum full-load control rod travel)

224

En

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 o3

2. Edition

PE 6 P 110 A 320 RS 3080-1

ROV 250-1025 PA 589

supersedes 12.82 company Volvo

Komb.-Nr. 0 401 846 768

engine TD 100 FA 220 kW (299 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2.45-3.15) mm (from BDC)= RW 9.0 - 12.0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	17,9 - 18,1	0,4(0,8)			$2,5 \pm 0,1$ $(2,2 - 2,9)$
250	4,3-4,5	1,7 - 2,1	0,3(0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed			Intermediate	rated spe	ed	Lower rated	speed	Į.	Sliding s	leeve travel
deflection	Control	II av Gr	ال	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod trave!		
of control lever	rod travel	rev/min (- 11		rev/min	mm. 4	lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
max.	1090	15,2-17	,8	•	-	-	ca .9		min.5,8		0,7-0,9
ca. 64	12,2	1085-109						250	4,3-4,5	660	3,9-4,5
	1300	1160-119						31 5-3	375 = 2,0	01s 945	6,4-6,6
										1025	7,6
ļ	1	ļ	ļ			ļ	(3a)			<u> </u>	<u> </u>

Torque control travel a =

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C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuet deliv	rery characteristics 5a	Starting Idle switchir	, —	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/m:n	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm 9
LDA 700	0,75 bar 179,0-181,0 (176,0-184,0)	1085-1095*	LDA 1000 LDA 700	0,75 bar 170,0-174,0 (167,0-177,0 0 bar 130,5-133,5 (128,0-136,		150,0-200,0 (146,0-204,0 = 20,0-21,0 mm RW	Þ)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2



VOL 10,0 03

- 2 -

Testatn = 500	revimin decreasing pressure - in	bar gauge pressure	
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P RS 3080-1	0,42		12,5 - 12,6
+ RQV PA 589		0,75	13,2 - 13,3
	1	0	10,5 - 10,6
	1	0,26	11,4 - 11,6
	<u> </u>		
	1	:	<u> </u>

Notes

(1) wheren =

revimin and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 10,0 o2 3. Edition

PE 6 P 110 A 320 RS 3080-1

ROV 250-1100 PA 589

supersedes 8.83

company: Volvo

TD 100 F

Komb.-Nr. 0 401 846 769

220 kW (299 PS)

All test apportications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC) = RW 9.0 - 12.0 mmPort closing at prestroke Spring pre-tensioning (torque-control valve) Control rod travel Fuel delivery Control rod Fuel delivery Difference Rotational speed cm³/100 strokes 100 strokes cm³/100 strokes mm rev/min 2,5 + 0,10,4(0,8) 17.9 - 18.112,7+0, 700 (2,2 - 2,9)3,8-4,0 1,7 - 2,10,3(0,6)250

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

peed		Intermediate	rated sp	ee d	Lower rated	speed	1	Sliding s	leeve travel
rev/min Control	Control rod (15)	/ Genection		Control rod travel	Degree of deflection		Control rod travel		
	mm rev/min (2)	of control lever	rev/min	mm (4)	lever	rev/min	mm ③	rev/min	mm
2	3	4	5	6	7	8	9	10	11
1180	15,2-17,8	-	-	_	ca. 8	100	min. 5,3	200	0,7-0,9
11,7		7				250	¹ 3,8-4,0	500	4,2-4,8
4,0	1235-126	5				305-3		bis	6,4-6,6
1350	û - i,		}		(3a)			11040 1100	7,6
	rev/min Control rod travel mm 2 1180 11,7 4,0	Control rod travel rod	Control Control Travel Control Travel Control Travel Control	Control Cont	Control rod Control rod Control rod Control rod Control rod travel Control rod travel Control rod	rev/min Control rod 19 Degree of deflection of control rod travel mm rev/min 2a 2a 5 Control rod travel mm 4 6 7 7 1160-1170 4,0 1235-1265 Control rod travel mm 4 6 7 7 7 7 7 7 7 7 7	Control Cont	Control Cont	Control rod travel Control

Torque control travel a =

C. Settings for Fuel Injection with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (22) Irmitation intermediate speed	Fuel of the a	ENTERPORTICE (58)	Starting Idle switchin	. 0	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strok es 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm 9
LDA 700	0,75 bar 179,0-181,0 (176,0-184,0)	1160-1170*	LDA 1000 LDA 700	0,75 bar 170,0-174,0 (167,0-177,0) 0 bar 130,5-133,5 (127,5-136,5)		150,0-200,0 = 20,0-21,0 mm RW	1 1	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

VOL 10,0 o 2 - 2 -

Pump/governor	Setting	Measurement	Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P RS 3080-1	0,42		12,0 - 12,1
+ RQV PA 589		0,75	12,7 - 12,8
·		0	9,9 - 10,0
		0,26	10,8 - 11,0
		÷	: !

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

estoil-ISO 4113

and Governors

WPP 001/4 MB 14,6 a 4 . Edition

PE 8 P 110 A320 LS 3802

RQ 300/1150 PA 437 (1) ROV 300-1150 PA 486 (2) supersedes 80 company Daimler-Benz OM 422

Komb.-Nr. 0 401 848 708 (1) 0 401 848 712 (2) 1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ +0.5^{\circ}}$ ($^{+0.75^{\circ}}$)

206 Kw (280 Ps)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4.00-4.10

mm (from BDC)

Zy1.8

Rotational speed	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150 300 600	12,7-12, 8,5-8,7		0,4(0,8) 0,4(0,7) 0,6(1,0)			

Adjust the fuel delivery from each outlet according to the values in ______

B. Governor Settings

RQ - 437

PRG cher	Control rod	(1)	Full-load s Setting po rev/min				Setting prev/min	Control Control rod (ravel		cifications 5 Control rod travel mm	rev/min	Control rod (3)
600	13,8-1	4,6	600	14,0	l .	1195-1210 1250-1280	1	8,6	1	min.10,1 8,5-8,7	1150 1025	12,7-12,8 12,8-13,0
1400	0 -	1,0							420-	470=2,0	600	13,0-13,1
							<u> </u>					1 mm less control

Torque-control travel on flyweight assembly dimension a = 0,2

1195-1210 min

rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting for	Control
rev/min	cm³/-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min	red travel cm ³ /1000 strokes/mm 7
1150	121,0 - 123,0 (118,0 - 126,0)	600	600	117,0 - 121,0 (114,0 - 124,0)	100	130,0-150,0

Checking values in brackets

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d		Rotational-speed (2b)	Fuel deli-	very characteristics (Sa) speed (Sb)	Starting Idle switchin	fuel delivery 6	Torque	control 5
rev/min	cm²/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	revimin 6	crn /1000 strakes	revimin 8	Control rod travel mm
1150	121,0-123,0 (118,0-126,0)	1190-1200*	600	117,0-121,0	100	130, 0-150, 0	1150 900	12,7-12,
	(110,0 120,0)	1				220 (80-240)	600	12,8-13,

Checking values in brackets

* fimmless control rod travel than col. 2

B. Governor Settings

Upper rated	speed			Intermediate	rated spe	ed	Lower rate	speed		Sliging si	leeve travel
Degree of deflection	Control		(¹a)	Degree of deflection	ţ	Control rod travel	Degree of deflection of control	:	Control rod travel		1
iof control lever	rod travel	rev/min	(2a)	of contro- lever	rev/min	mm 4	lever	rev/min	·mm 3	rev/min	mm
1,	2	3	$\overline{}$	4	5	6	7	8	9	10	1.1
							33)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed 2b Ilmitation intermediate speed			Starting Idle switchii		6 Torque-control 5 travel Control roc		
rev/min	cm ³ /1000 strokes	rev/min	rev <i>i</i> min	cm ³ /1000 strokes	rev/min	!	rev/min	travel mm	
1	2	· 3	4	5	6	7	8	9	
		<u> </u>	:	:	1				
			İ	!		1	3	; ; ;	
			1		i				
			1	:		1 1		† :	
	•		1		İ	İ		İ	
	i :		:						
		<u> </u>		·				L	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 21,9 b 1 2. Edition

PE 12 P 120 A 320 LS 3819-2 ROV 350-1050 PA 493

1-5 -9 - 8 - 3 - 4 -11-10 - 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° -0,5 (-0,75) engine 357 kW (485 PS) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067.
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 83 Daimler-Benz compack 424 A

> Komb.-Nr. 0 401 840 711

A. Fuel Injection Pump Settings

mm (from BDC) 7y1, 12 (3.95-4.15)Port closing at prestroke

Rotational speed	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1050	10,2+0,	15,1-15,3	0,5(0,8)			
350	4,6-4,	8 1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediat	e rated sp	l .	Lower rated	speed	Sliding sleeve travel		
deflection	rev/min Control rod travel mm	travel	Degree of deflection of control lever	rev/min	control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	mm
max.	1150	15.2-17.5	3. -	-	<u> </u>	ca.10	100 350	min.6,2 4,6-4,8		0,9-1,1 3,4-3,6
ca. 56	9,2	1085-109					330	1 1,40 1,51		4,7-4,9 6,8
	4,0 1350	1165-119	1			360-500	i 			
		ļ				(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem		Rotational-speed (20) limitation intermediate speed	Fuel deliv	ery characteristics 5a	Starting Idle switchir	•	Torque- travel	Control (5) Control rod travel
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1050	0,6 bar 151,0-153,0 (148,0-156,0)	1080-1090*	LDA 1050 ** LDA 500	0,6 bar 120,0-123,0 (117,0-126,0 9 bar 128,0-130,0 (125,0-133,0		140,0-160,0 (136,0-164,0) -	-

Checking values in brackets

Set at the reduced-delivery stop.

* 1 mm less control rod travel than col 2

MB 21,9 b 1 - 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	.mm (1)
PE 12 PLS3819-2 +ROVPA 493	0,28	0,60 0 0,24	9,9-10,0 10,2-10,3 9,5-9,6 9,6-9,8
*ROVPA 433		0	9,5-9,6

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 59,2 a 2. Edition

PE 6 ZW 140/400 RS 27/2, 53/2 RQUV 300-750 ZW 31 PE 6 ZW 140/410/3 RS 28/2, 54/2 1 - 5 - 3 - 6 - 2 - 4 je $60^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Replaces 2.83 MTU

MMB 820

VDT-W-400/305 Please note instructions on sheet 2

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke 2,0-2,1

mm (from BDQ)y1. 6

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	(valve)
min- '	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes 5	
1	12	104 0 504 0	45 0 (22 0)	487,0-505,0	
600	18,0	491,0-501,0	15,0 (22,0)		
600	4,0	70,0-90,0	10,0 (15,0)	67,0-93,0	
250	4,0	23,0-43,0	8,0 (12,0)	20,0-46,0	
	[

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min 2	Control- rod travel mm min 1	Medium ra Control lever flection degrees 4	min 5	Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min: ' 8	Control- rod travel mm 9	min 1	Control- rod travel mm 11
ca. 85	750 775 800 840 865	13,0-18,0 5,0-12,0 0-3,0		-	-	ca. 19	270 300 325 350 400 540	11,0-13,0 7,6-8,0 5,0-6,2 4,8 3,3-4,3		-

Torque control travel a =

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

OD GOVE	d delivery	Control rod stop at speed	Fuel-de charact	livery eristics i	Startin deliver	
min "	temperature 40°) cm³/1000 strokes 2	min . 3	min : 1 4	cm³/1000 strokes 5	mın 6	cm ³ /1000 strokes 7
750	21 mm RW	-	-	-	-	-
,						
						11 83

Checking values in brackets

Pump

With these pumps the customer also requests that the stop and full load limits of the control-rod projection be stamped on the pump housing at contol-rod travel 0 mm.

These dimensions, which must be stamped in, can be calculated as follows:

Mark control-rod travel 18 mm (setting point of the pump) with insertion device. Calculate the projection of the control rod front end on pump side 2. Deduct 18 mm from the dimension calculated. Calculate the projection of the control rod with forked piece fitted on pump side 1. Add 18 mm to this dimension. Stamp these dimensions on the front of the pump housing above the spring chamber cover (with plunger-and-barrel assembly 1 the dimension of pump side 1 and with plunger-and-barrel assembly 6 that of pump side 2). Size of figures approx. 5 - 6 mm.

After the insertion device has been removed the 0-dimension calculated on pump side 2 must be reached or not reached in the stop position of the control rod.

On pumps with governor ascertain only the dimension on the drive end and stamp this on the housing.

Governor

The lower idle spring must be positioned between its spring seats, and if necessary also the middle spring must be positioned under the outer spring seat, so that the governor specifications are reached.

estoil ISO 4113

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 19,9 a 1

1. Edition

PE 6 ZW 150/120 RS 70/11

RQU 250-350/1000 ZWA 46 DR

Replaces

Komb.-Nr. 0 402 436 033

Engine MB 6 V 331

1-2-3-4-5-6

0-45-120-165-240-285° ± 0,5° (± 0,75°)

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing a Rotational	Control-	(2.45-2.65) Fuel delivery	mm (from BDC) y)	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery cm ³ /1000 strokes	Checking values cm ³ /1000 strokes	valve)
min i	mm 2	3	4	5	
1000	18,0	497,0-507,0	15,0 (22,0)	494,0-510,0	
600 300	9,0 9,0	125,0-145,0 37,0-57,0	16,0 (24,0) 10,0 (15,0)	120,0-156,0 33,0-61,0	-
1100 350		C Sp. 2 C Sp. 5	12,0		

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	 Control- rod travel mm min	Medium ra Control lever flection degrees	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	ed speed min 8	Control- rod travel mm 9	Torqu min 10	e control Control- rod travel mm
ca.58	18,0 17,5-18,0 11,7-16,0 3,0-10,0 0-1,0	ca.27		14,1-16,4 10,2-11,8 7,4-7,6 2,0-2,7 2,0 1,8-2,0		150 220 250 400 520	11,1-13,2 8,0-8,7 7,6-7,8 2,7-4,5 0	-	-

Torque control travel a = -

Speed regulation. At 1130-1140 min less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery		
min cm#/1000 strokes		min 3	mın 4	min cm ³ /1000 strokes 4 5		cm²/1000 strokes 7	
1100	279,0-285,0 (276,0-288,0)	-	350	42,0-48,0	100	17,8-18,2 mm RW (17,5-18,5) Shutoff solenoid 0,5 - 1,5 mm in front of stop	

Checking values in brackets

Cestoil-150 4113

Test specifications Fuel injection pumps and governors

... 19,9 a טווי 19,9 a

Edition

PE 6 ZW 150/120 RS 70/11 Z

RQU 250-350/1100 ZWA 43 DR

Replaces Firm

Komb.-Nr. 0 402 436 032

niiu Engine 1118 o 1 331

1-2-3-4-5-6

 $0-45-120-165-240-285^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

2,50-2,60 (2,45-2,65) mm (from BD)(2)1 6

prestroke	(2,45-2,05)			Spring pre-tension
Control-	Fuel delivery	Difference	, 60, 20, 10, 1	(torque-control
rod travel	Average value	in fuel delivery	Checking values	valve)
mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
12	3	4	5	
18,0	497,0-507,0	15,0 (22,0)	494,0-510,0	-
9,0	125,0-145,0	16,0 (24,0)		
9,0	37,0-57,0	[10,0 (15,0)	33,0-01,0	
1	C Sp. 2			
	C Sp. 5	12,0		
	-			
	rod travel mm 2 18,0 9,0	Control- rod travel mm cm³/1000 strokes 2 18,0 497,0-507,0 9,0 125,0-145,0 9,0 37,0-57,0 C Sp. 2	Control- Fuel delivery Difference in fuel delivery cm ³ /1000 strokes 2 3 4 18,0 497,0-507,0 15,0 (22,0) 9,0 125,0-145,0 9,0 37,0-57,0 C Sp. 2	Control- Fuel delivery Difference Fuel delivery rod travel Average value in fuel delivery Checking values mm cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes 2 3 15,0 (22,0) 494,0=510,0 9,0 125,0-145,0 16,0 (24,0) 120,0-150,0 9,0 37,0-57,0 10,0 (15,0) 33,0-61,0

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min 2	Control- rod travel mm min:'	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 8	Control- rod travel mm 9	min 10	e control Control- rod travel mm
ca.58		18,0 17,5-18,0 11,7-16,0 3,0-10,0 0-1,0	ca.27		14,1-16,1 10,4-12,5 7,4-7,6 2,0-2,7 2,0 1,8-2,0		150 220 250 400 520	1,0-14,2 8,0-8,6 7,6-7,8 2,6-4,3	-	-

Torque control travel a =

Speed regulation: At 1130-1140 milmin less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed Fuel-delicharacte			Starting fuel delivery		
min	cm ³ /1000 strokes	min 3	min 4	cm³/1000 strokes 5	min 6	cm ² /1000 strokes 7	
1100	318,0-324,0 (315,0-327,0)	-	350	42,0-48,0		17,8-18,2 mm RW (17,5-18,5) Shutoff solenoid 0,5 - 1,5 mm in front of stop	

Checking values in brackets

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 26,5 g

1. Edition

Replaces

PE 8 ZW 150/120 RS 74/11 ROU 250-350/1100 ZWA 46 DR

Komb. Nr. 0 402 438 011

Firm MTU Engine MB 8 V 331

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \stackrel{+}{-}0,5^{\circ} (\stackrel{+}{-}0,75^{\circ})$

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke 2,50-2,60(2,45-2,65()rom BDZy1. 8

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min = 1	mm	cm³/1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes 5	
1		_ -	ļ ·		
1000	18,0	497,0-507,0	15,0(22,0)	494,0-510,0	
600	9,0	125,0-145,0	16,0(24,0)	120,0-150,0	
300	9,0	37,0-57,0	(0,0(15,0)	33,0-61,0)	
1100 350		C Sp 2 C Sp 5	12,0		

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min 2	Control- rod travel mm min	Medium ra Control lever flection degrees 4	min 1	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 8	Control- rod travel mm 9	min 10	e control- Control- rod travel mm
ca.58	650 1100 1150 1200 1280	18,0 17,5-18,0 11,7-16,0 3,0-10,0 0 - 1,0	ca.27	150 220 350 500 650 1000	14,1-16,4 10,2-11,8 7,4-7,6 2,0-2,7 2,0 1,8 ₀ 2,0		150 220 250 400 520	11,1-13,2 8,0-8,7 7,6-7,8 2,7-4,5 0	-	-

Torque control travel a =

Speed regulation: At 1130-1140 minmi less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	delivery ernor control lever temperature 40°)	Control rod stop at speed		Fuel-delivery characteristics		g fuel 7
min	cm ³ /1000 strokes	min 3	min ·	cm³/1000 strokes 5	mın 6	cm ³ /1000 strokes 7
1100	279,0-285,0 (276,0-288,0)	-	350	42,0-48,0	100	17,8-18,2 mm RW (17,5-18,5)
•						Shutoff solenoid 0,5 - 1,5 mm in front of stop

Checking values in brackets

WPP 001/4 MTU 26,5 g 1

1. Edition

PE 8 ZW 150/120 RS 74/11 Z Komb.-Nr. 0 402 438 010

Control-

mm

rod travel

18,0

9,0

9,0

ROU 250-350/1100 ZWA 43DR

Replaces

MTU

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \stackrel{+}{=} 0,5^{\circ} (\stackrel{+}{=} 0,75^{\circ})$

Engine MB 8 V 331

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke

Rotational

1000

600

300

1100

350

speed

min :

Testoil SO

(2,45-2,65)

Fuel delivery

Average value

cm3/1000 strokes

497,0-507,0

125,0-145,0

37,0-57,0

C Sp. 2

C Sp. 5

mm (from BDZV). Fuel delivery

Checking values

cm³/1000 strokes

494,0-510,

120,0-150,

33,0-61,0

Difference

in fuel delivery

cm³/1000 strokes

15,0 (22,0)

16,0 (24,0)

10,0 (15,0)

12,0

	Spring pre-tension (torque-control valve)
0	-

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min	Control- rod travel mm min :	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7		Control- rod travel mm 9	min	e controi Controi- rod travei mm
ca.58		18,0 17,5-18,0 11,7-16,0 3,0-10,0 0-1,0	ca.27	2	14,1-16,4 10,4-12,5 7,4-7,6 2,0-2,7 2,0 1,8-2,0	1	150 220 250 400 520	11,0-14,2 8,0-8,6 7,6-7,8 2,6-4,3 0		trol rod trave

C. Settings for fuel-injection pump with fitted governor

on gove	ernor control lever it temperature 40°)	C atrol rod stop at speed	Fuel-de charact	livery eristics	Starting fuel delivery		
min :	cm³/1000 strokes	min 3	min 1	cm ³ /1000 strokes 5	min 6	cm ³ /1000 strokes 7	
1100	318,0-324,0 (315,0-327,0)	-	350	42,0-48,0	100	17,8-18,2 mm RW (17,5-18,5) Shutoff solenoid 0,5 - 1,5 mm in front of stop	
						11 83	

Checking values in brackets

1. Edition

PE 6 ZW 150/120 RS 75/11 ROUV 375-1200 ZWA 45 R

Komb.-Nr. 0 402 436 035

Replaces

Firm. MTU

Engine MB 6 V 331

1 - 2 - 3 - 4 - 5 - 6 0 - 45 - 120 - 165 - 240 - 285 ($^{+}_{0}$, 75°)

Note VDT-W-400/305 All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings
2,50-2,60(2,45-2,65)
Port closing at prestroke

2,50-2,60(2,45-2,65)
Port closing at prestroke

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min-;	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	
1000	18,0	497,0-507,0	15,0(22,0)	494,0-510,0	-
600	9,0	125,0-145,0	16,0(24,0)	120,0-150,0	
300	9,0	37,0-57,0	10,0(15,0)	33,0-61,0	
1200 375		C Sp 2 C Sp 5	12,0		

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Control lever deflection degrees	mm min	Control- rod travel mm min - 1	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	ed speed min 8	control- rod travel mm 9	min 10	e control Control- rod travel mm
ca.85		17,7-21,4 11,5-16,8 3,5-11,5 0 - 5,6 0 - 2,0	-	-	-	ca.32	240 340 375 460 600 820	18,0-20,0 8,6- 9,7 7,9-8,1 3,5-5,6 1,6-4,3		-

Torque control travel a =

Speed regulation. At 1230-1240 minnin less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control le (Test oil temperature 4	ver at speed	Fuel-delivery characteristic		Starting fuel delivery		
min cm ³ /1000 stro		min cm ⁻²	/1000 strokes	mın 6	cm:/1000 strokes 7	
1200 279,0-285 (276,0-288	- (,0)	375	42,0-48,0	-	Shutoff solenoid 0,5 - 1,5 mm in front of stop	

Checking values in brackets

Testoil-150 4-13

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 26,5 h

1. Edition

Replaces

PE 8 ZW 150/120 RS 76/11 RQUV 300-775 ZW (A) 47 R

Firm MTU Engine MB 8 V 331

Komb.-Nr. 0 402 438 007

1- 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Note VDT-W-400/305 All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuol-injection-pump settings

Port closing at prestroke 2,50-2,60(2,45-2,65) from BDC)Zy1. 8

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min - '	mm 2	cm ³ /1000 strokes	cm ³ /1000 strokes	om ³ /1000 strokes	
1000	18,0	497,0-507,0	15,0(22,0)	494,0-510,0	-
600 300	9,0 9,0	125,0-145,0 37,0-57,0	16,0(24,0) 10,0(15,0)	120,0-150,0 33,0-61,0	
775 300		C Sp 2 C Sp 5	12,0		
	1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	speed mm min 2	Control- rod travel mm min	Medium ra Control lever flection degrees 4	min 1	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	ed spee min 8	d Control- rod travel mm 9	min 10	e control Control- rod travel mm
ca.82	800 900 775 800 820 875	18,0-21,5 0 11,6-14,8 5,1-11,1 0 - 8,0 0	-		-	ca.15	280 320 400 540	8,4-10,3 6,1-9,3 0,9-4,0 0	-	-

Torque control travel a ==

Speed regulation At 780-790 min 1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	ad delivery ernor control lever il temperature 40°)	Control rod stop at speed	Fuel-de charact		Starting fuel delivery		
min	cm ³ /1000 strokes	min :	min 4	cm#1000 strokes	mın 6	cm³/1000 strokes 7	
775	279,0-285,0 (276,0-288,0)	-	300	50,0-55,0	-	Shutoff solenoid 0,5 - 1,5 mm in front of stop	

Checking values in brackets

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 26,5 h1

1. Edition

Replaces

Firm

Engine UB 8 V 331

Komb.-Nr. 0 402 438 003

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

PE 8 ZW 150/120 RS 76/11 RQUV 375-1200 ZWA 45 R

Note VDT-W-400/305
All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke 2,50-2,60(2,45-2,65)(from BDC) Zy1. 8

Rotational speed	Control- rod travel	Fuel delivery Average value cm³/1000 strokes	Difference in fuel delivery cm ² /1000 strokes	Fuel delivery Checking values cm ⁻ /1000 strokes 5	Spring pre-tension (torque-control valve)
1	- 2	3			
1000	18,0	497,0-507,0	15,0(22,0)	494,0-510,0	-
600	9,0	125,0-145,0	16,0(24,0)	120,0-150,0	
300	9,0	37,0-57,0	10,0(15,0)	33,0-61,0	
200		C Sp 2			
375		C Sp 5	12,0		

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min -:	Control- rod travel mm min 3	Medium ra Control lever flection degrees 4	min : 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7		Control- rod travel mm 9		e control Control- rod travel mm 11
ca.85	1200 1250 1300 1350 1400	17,7-21,4 11,5-16,8 3,5-11,5 0 - 5,6 0 - 2,0	-	-	-	ca.32	240 340 375 460 600 820	18,0-20,0 8,6- 9,7 7,9- 8,1 3,5- 5,6 1,6- 4,3	-	-

Torque control travel a =

Speed regulation: At/1230~1240 milmilless control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever I temperature 40°)	Control rod stop at speed	Fuel-de charact	-	Startir delive	
min i	cm³/1000 strokes	min :	min 4	cm ³ /1000 strokes 5	mւռ 6	cm ³ /1000 strokes 7
1200	279,0-285,0 (276,0-288,0)	-	375	42,0-48,0	-	Shutoff solenoid 0,5 - 1,5 mm in front of stop

Checking values in brackets

Testoil-150 4113

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 19,9 b 5. Edition

PE 6 ZW 150/120 RS 1001/11 RQUV 300-1200 ZWA 48 R

Replaces .78 MTU

1 - 2 - 3 - 4 - 5 - 6 $0 - 45 - 120 - 165 - 240 - 285^{\circ} + 0,5^{\circ} (+0,75^{\circ})$

Engine: MB 6 V 331

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings 2,50-2,60

Rotational	i, ontroi-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min i	mm	cm ³ /1000 strokes	cm ² /1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	
1000	18,0	497,0-507,0	15,0(22,0)	494,0-510,0	-
600	9,0	131,0-151,0	16,0(24,0)	126,0-156,0	
300	9,0	70,0-90,0	10,0(15,0)	65,0-95,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control 'ever deflection degrees	mm min	Control- rod travel mm min- 3	Medium ra Control lever flection degrees 4	ted spec min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7		control- rod travel mm 9	min- 10	e control Control- rod travel mm
ca. 85	1200 1250 1300 1350 1420	8,0-21,0 12,2-16,8 6,4-11,6 0,4-6,4 0 -2,0	ca. 30	250 375 500 600 730	2,2-14,6 6,0-7,2 2,6-3,7 0,8-2,1 0	ca.23	300 400 570	14,3-16,1 7,3-8,6 2,8-4,3 0	-	-

Speed regulation: At 1230-1240 mimm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	ad delivery ernor control lever il temperature 40°)	Control at speed		Fuel-de charac	eliver teristics	Starti delive	ng fuel ery
min 1	cm ³ /1000 strokes	min 3	Idle	min 4	cm ³ /1000 strokes 5	min 6	cm ² /1000 strokes 7
1200	18 mm RW	E .	OO ,O mm RW	-	-	-	Shutoff solenoid 0,5 - 1,5 mm in front of stop
					<u> </u>		11.8

Checking values in brackets

WPP 001/4 MTU 26,5 c

1. Edition

PE 8 ZW150/120 RS 1002/11 RQUV 300-1200 ZWA 48 R

Replaces Firm

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Engine: MB 8 V 331

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Testoiliso 41

Port closing a		2,50 - 2,60 2,45 - 2,65)	mm (from BDQzyl.		Spring pre-tension
Rotational	Control-	Fuel delivery	Difference	Fuel delivery	(torque-control
speed	rod travet	Average value	in fuel delivery	Checking values	valve'
min-'	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
. 1	2	3	4	5	
1000	(8,0)	497,0-507,0	15,0(22,0)	494,0-510,0	-
600	9.0	131,0-151,0	16,0(24,0)	126,0-156,0	
300	9,0	70,0-90,0	10,0(15,0)	65,0-95,0	
; 1	į				

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees		Control- rod travel mm min	Medium ra Control lever flection degrees	min	Control- rod travel mm	Lower rat Control lever de- flection degrees 7	min 8	Control- rod travel mm	Min 1	e control Control- rod travel mm
ca.85	1200	8,0-21,0	ca. 30	250	12,2-14,	5 ca.23	150	14,3-16,1	-	-
	1250 1300 1350 1420	12,2-16,8 6,4-11,6 0,4-6,4 0 -2,0		375 500 600 730	6,0-7,2 2,6-3,7 0,8-2,1	'	300 400 570	7,3-8,6		
				<u> </u>			120 12	10 mienale		trol rod tra

Torque cont: 01 travel a =

Speed regulation At 1230-1240 mimm less control rod travel

C. Settings for fuel-injection pump with fitted governor

l on gave	d delivery ernor control lever I temperature 40°)	Control rod stop at speed	Fuel-delivery characteristics	Starting fuel delivery
	cray/1000 strokes	min Idle	min cm³/1000 strok 4 5	es min cm³/1000 strokes 7
1200	18 mm RW	300 = 8,0 mm RW		- Shutoff solenoid 0,5 - 1,5 mm in front of stop

Checking values in brackets

Testoiliso 4113

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 19,9 d

1. Edition

RQU 250-350/1100 ZWA 43 DR PE 6 ZW 150/120 RS 1007/11

Replaces

Firm: MTU

Engine MB 6 7 331

Note VDT-W-400/305 Governor adjustement according to VDT-I-420/112

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from BDZ)/1. 6

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min-1	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	
1000	18,0	497,0-507,0	15,0(22,0)	494,0-510,0	-
600	9,0	131,0-151,0	16,0(24,0)	126,0-156,0	
300	9,0	70,0-90,0	10,0(15,0)	65,0-95,0	
			ł		

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees		Control- rod travel mm min 1	Medium ra Control lever flection degrees 4	min 1	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min '	Control- rod travel mm 9		e control Control- rod travel mm 11
ca. 58	650 1100 1150 1200 1230	13,7-16,0 3,0-10,0	ca. 27	100 350 650 1000 1150	14,5-17,5 7,6-8,2 1,8-2,4 1,8-2,4 0	ca.21	150 250 400 530	9,5-11,8 7,7-8,2 2,2-4,5 0	<u>-</u>	-

Torque control travel a =

Speed regulation: At 1130-1140 minmiless control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever i temperature 40°)	Control rod stop at speed	Fuel-de charact	· ·	Startin- deliver	
min:	cm ³ /1000 strokes	min Leerlauf	min 4	cm³/1000 strokes 5	min 6	cm ² /1000 strokes 7
1100	18 mm RW	300	-	-	100	18,0-18,2 mm RW
		= 8,0 mm RW				Shutoff solenoid 0,5 - 1,5 mm in front of stop

Checking values in brackets

WPP 001/4 MTU 19,9 c1

1. Edition

PE 6 ZW 150/120 RS 1007/11

RQU 250-400/1100 ZWA 49 R

Replaces

1 - 2 - 3 - 4 - 5 - 6 $0 - 45 - 120 - 165 - 240 - 285^{\circ} + 0,5^{\circ} (+0,75^{\circ})$

MB 6 V 331

MTU

Note VDT-W-400/305 Governor adjustement according to VDT-I-420/112 All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from 8D Zyl. 6

Port closing a	t prestroke (2	2,45-2,65)	mm (from BDQyI.	Fuel delivery	Spring pre-tension
Rotational	Control-	Fuel delivery	Difference	1	(torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
min ^{- 1}	2	3	4	5	
1000	18,0	497,0-507,0	15,0(22,0)	494,0-510,0	-
600	9,0	131,0-151,0	16,0(24,0)	126,0-156,0	
300	9,0	70,0-90,0	10,0(15,0)	65,0-95,0	
ł					

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated spe Control lever deflection degrees min	ed		Medium ra Control lever flection degrees	tea spee	Control-	Lower rate Control lever de- flection degrees 7		Control- rod travel mm 9		e control Control- rod travel mm
11	00 25 50 00	17,6-18,0 12,0-17,0 0 - 7,5	ca. 22	150 400 700 1100 1160	15,0-18,0 7,8-8,8 1,8-2,4 1,8-2,4		150 250 400 530	9,8-11,9 7,8-8,2 2,3-4,5 0	-	-

Torque control travel a =

Speed regulation: At 1130-1140 milmil less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load	delivery	Control rod stop at speed	Fuel-de charact	livery teristics	Starting	
Test oil	temperature 40°) cm ³ /1000 strokes	min Leerlauf	min-1 4	cm ³ /1000 strokes 5	min 6	cm ³ /1000 strokes 7
1100	18 mm RW	300	-	-	100	18,0-18,2 mm RW
		= 8,0 mm RW				Shutoff solenoid 0,5 - 1,5 mm in front of stop
						11.83

Checking values in brackets

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 39,7 e

1. Edition

PE 12 ZW 150/120 RS 1008/11

ROUV 300-1200 ZWA 50 R

Replaces

MTU

Engine MB 12 V 331 1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6 $0-45-60-105-120-165-180-225-240-285-300-345^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Rotational	Control-	(2 45-2 65) Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min •	mm 2	cm ¹ /1000 strokes	cm:/1000 strokes	cm4/1000 strokes 5	
1000	18,0	497,0-507,0	15,0 (22,0)	494,0-510,0	-
600 300	9,0 9,0	131,0-151,0 70,0-90,0	16,0 (24,0) 10,0 (15,0)	126,0-156,0 65,0-95,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees		Control- rod travel mm min 3	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 5	Lower rat Control lever de flection degrees 7	mia 8	Control- rod travei mm 9	m in 10	e control Control rod travel mm 11
ca.85	1200 1250 1300 1350 1420	8,0-21,0 12,2-16,8 6,4-11,6 0,4-6,4 0-2,0	ca.30	250 375 500 600 730	12,2-14,6 6,0-7.2 2,6-3,7 0.3-2,1 0	ca.23	150 300 400 570	14,3-16,1 7,3-8,6 2,8-4,3 0	-	•

Torque control travel a = *

Speed regulation At 1230-1240 mimmin less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever il temperature 40°)	Control rod stop at speed			Fuel-delivery characteristics		Starting fuel delivery		
min	cm3/1000 strokes	min 3	Idle	min 4	cm ^{3/1000} strokes 5	min 6	cm·/1000 strakes 7		
1200	18 mm RW	300 = 8,0	mm RW	-	-	-	Shutoff solenoid 0,5 - 1,5 mm in front of stop		

Checking values in brackets

WPP 001/4 MTU 39,7 e 1

1. Edition

PE 12 ZW 150/120 RS 1008/11

RQUV 300-1200 ZWA 55 R

Replaces

1-12-9-4-5-8-11-2-3-10-7-6 0-45-60-105-120-165-180-225-240-285-300-345° $\stackrel{+}{=}0,5$ ° ($\stackrel{+}{=}0,75$ °)

Engine

Firm

MB 12 V 331

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from SDO) 1 12

Port closing at	Control-	(2,45-2,65) Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min '	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
	2	3	<u> </u>	 	
1000	18,0	497,0-507,0	15,0 (22,0)	494,0-510,0	-
600	9,0	131,0-151,0	16,0 (24,0)	126,0-156,0	
300	9,0	70,0-90,0	10,0 (15,0)	65,0-95,0	
	ļ				
	1	1	i		

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min	Control- rod travel mm min	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 8	Control- rod travel mm 9	min 10	Control- rod travel mm
ca.85	200 250 300 350 420	8,0-21,0 12,2-16,9 6,4-11,6 0,4-6,4 0-2,0	ca.30	250 375 500 600 730	12,2-14,6 6,0-7,2 2,6-3,7 0,8-2,1	ca.23	150 300 400 570	4,3-16,1 7,3-8,6 2,8-4,3 0	-	-

Torque control travel a == =

Speed regulation: At 1230-1240 minmh less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load	d delivery ernor control lever		Control rod stop at speed		Fuel-delivery characteristics		ng tuel Pry
(Test or	cm ³ /1000 strokes	min 3	Idle	min 4	cm:/1000 strokes 5	mın 6	cm ² /1000 strokes 7
1200	18 mm RW	300 = 8,0) mm RW	-		-	Shutoff solenoid 0,5 - 1,5 mm in front of stop
							11.83

Checking values in brackets

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 26,5 e 1

1. Edition

PE 8 ZW 150/120 RS 1009/11

RQU 250-400/1100 ZWA 49 R

Replaces

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} : 0,5^{\circ} (+ 0,75^{\circ})$

Firm Engine

MB 8 V 331

Note VDT-W 400/305!

Governor adjustment according to VDT-I-420/112

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing a		2,50-2,60 2,45-2,65)	mm (from BDC)	Cyl.8	
Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travei	Average value	in fuel delivery	Checking values	valve)
min '	mm	cm ³ /1000 strokes	cm 1/1000 strokes	cm 71000 strokes	
1	2	3	4	5	
1000 600 300	9,0 9,0 9,0	497,0-507,0 131,0-151,0 70,0-90,0	15,0(22,0) 16,0(24,0) 10,0(15,0)	494,0-510,0 126,0-156,0 65,0- 95,0	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor settings

Upper rated	speed		Medium ra	ted spec	ed	Lower rat	ed spee	d	Torqu	ie controi
Control lever deflection degrees 1	mm min ' 2	Control- rod travel mm min 1 3	Control lever flection degrees 4	min 5	Control- rod travel mm 6	Control lever de- flection degrees 7	min 8	Control- rod travel mm 9	min ⁻ 10	Control- rod travel mm 11
ca.58	700 1125 1150 1200 1300	18,0-18,5 17,6-18,0 12,0-17,0 0- 7,5 0- 1,0		150 400 700 1100 1160	15,0-18,0 7,8-8,8 1,8-2,4 1,2-2,4 0	ca.13	150 250 400 530	9,8-11,9 7,8-8,2 2,3-4,5 0		_

Torque control travel a =

Speed regulation At1130-1140 minimm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever I temperature 40°)	Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery		
min [:] 1	cm ³ /1000 strokes 2	min Idle speed	mın ' 4	cm 1/1000 strokes 5	min 6	cm 1/1000 strokes 7	
1100	18 mm RW	300 = 8,0 mm RW	-	-	100	18,0-18,2 mm RW shutoff solenoid 0,5-1,5 mm before stop	

eschaftsbereich KH. Kundendie: st. Kfz-Ausrustung by Robert Bosch GmbH, D-7 Stuttgart 1. Postfach 50. Printed in the Federal Republic of Germany iprimé en République Federale d'Allemagne par Robert Bosch GmhH

WPP 001/4 MTU 26,5 e

1. Edition

PE 8 ZW 150/120 RS 1009/11

RQUV 300-1200 ZWA 50 R

Replaces

Firm MTU

Engine MB 8 V 331

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \stackrel{+}{=} 0,5^{\circ} (\stackrel{+}{=} 0,75^{\circ})$

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from BDC7v1 8

Port closing at Rotational	Control-	2,45-2,65) Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ² /1000 strokes	
1	2]3		<u> </u>	
1000	18,0	497,0-507,0	15,0 (22,0)	494,0-510,0	-
600	9,0	131,0-151,0	16,0 (24,0)	126,0-156,0	
300	9,0	70,0-90,0	10,0 (15,0)	65,0-95,0	
	1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min 2	Control- rod travel mm min '	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	ea speed min 8	Control- rod travel mm	min 10	e control Control- rod travel mm
ca.85	1200 1250 1300 1350 1420	8,0-21,0 12,2-16,8 6,4-11,6 0,4-6,4 0-2,0	ca.30	250 375 500 600 730	2,2-14,6 6,0-7,2 2,6-3,7 0,8-2,1	ca.23	150 300 400 570	14,3-16,1 7,3-8,6 2,8-4,3 0	-	-

Speed regulation At 1130-1140 minm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	id delivery ernor control lever il temperature 40°)	Control rod stop at speed	Fuel-de charact		Startii	ng fuel Pry
min 1	cm ² /1000 strokes	min Idle	min 4	cm /1000 strokes 5	min 6	cm ¹ /1000 strokes 7
1200	18 mm RW	300 = 8,0 mm RW	-	-	-	Shutoff solenoid 0,5 - 1,5 mm in front of stop

Checking values in brackets

WPP 001/4 MTU 39,7 b 1

2. Edition

Replaces RQUV 300-1200 ZWA 51 R PE 12 ZW 150/120 RS 1010/11 UTM Komb.-Nr. 0 402 430 004 12 V 331 1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

 $0-45-60-105-120-165-180-225-240-285-300-345^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

,5 mm (from BDQV). Port closing at prestroke (2,45-2,65)Spring pre-tension Fuel delivery Difference (torque-control Fuel delivery Control-Rotational valve) Checking values in fuel delivery Average value rod travel speed cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes mm min 📑 494,0-510,0 15,0 (22,0) 497,0-507,0 18,0 1000 16,0 (24,0) 126,0-156,0 131,0-151,0 600 65,0-95,0 10,0 (15,0) 70,0-99,0 300 9,0

Adjust the fuel delivery from each outlet according to the values in lacksquare

B. Governor settings

Upper rated Control lever deflection degrees	mm min	Control- rod travel mm min	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min `	Control- rod travel mm 9	min 1	e control Control- rod travel mm
ca.85		1	ca.30	375 250 500 600 730	6,0-7,2 12,2-14,6 2,6-3,7 0,8-2,1		300 150 400 570	7,3-8,6 14,3-16,1 2,8-4,3 0	_	-

Torque control travel a = -

Speed regulation: At 1230-1240 milmin less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor contro! lever I temperature 40°)	Control rod stop at speed	Fuel-de charact		Startin	
min '	cm ³ /1000 strokes	min Idle	min 1	cm³/1000 strokes 5	mın 6	cm ³ /1000 strokes 7
1200	18 mm RW	300 = 8,0 mm RW	-	-	-	-
						11.83

Checking values in brackets

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 23,8 &

5. Edition

RQUV 300-900 ZWA 51 R PE 6 ZW 160/120 RS 1012/11

Replaces 78 Firm MTU

1 - 2 - 3 - 4 - 5 - 6 0 -45 -120-165-240-285° ± 0,5° (±0,75°) EngineMT 6 V 396

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Zyl. 6 mm (from BDC) Port closing at prestroke (2.45-2.65)

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min :	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes 5	
1					
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	_
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sieeve position 49,5 mm

Upper rated Control lever deflection degrees	mm	Control- rod travel mm min-1 3	Medium ra Control lever flection degrees 4	min 5	Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	mın 8	Control- rod travel mm 9	min 10	Control- rod travel mm 11
ca. 85	920 950 1020 1090	18,0-21,5 14,4-18,6 4,0-10,2 0-2,0	ca. 30	200 300 375 500 630	13,0-15,0 10,0-11,5 8,0 2,5-4,2 0		100 300 450 570	14,2-16,0 8,0 1,6-3,7 0	-	-

Torque control travel a =

Speed regulation At 910-915 min 1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-loa	ernor control lever	Control rod sto		iel-del iaracte	ivery eristic.	Starting deliver	
min	temperature 40°) cm³/1000 strokes	min 3	dle dn	ın	cm ² /1000 strokes 5	min 6	cm ³ /1000 strokes 7
900	18 mm RW	300 = 8 mm F	Rw	•	-	-	-
	i						11 83

Checking values in brackets

WPP 001/4 MTU 23,8 b

Edition

Replaces

RQUV 750 ZWA 53 R PE 6 ZW 160/120 RS 1012/11

1 - 2 - 3 - 4 - 5 - 6 0 -45 -120-165-240-285° ± 0,5° (± 0,75°) Firm Engine. MT 6 V 396

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing a	Control-	(2,45-2,65) [Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control	
Rotational speed	rod travel	Average value	in fuel deliver	Checking values	valve)	
min ⁻¹	mm 2	cm ³ /1000 strokes	cm ³ /1000 strokes 4	cm ³ /1000 strokes 5		
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	-	
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0		
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0		
	1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sleeve position 49,5 mm

Upper rated Control lever deflection degrees	mm min	Control- rod travel mm min ' 3	Medium ra Control lever flection degrees 4	min 5	Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7		d Control- rod travel mm 9		control Control- rod travel mm
ca. 69	750	18,0	_	-	-	-	-	-	-	-
	770 790 810	9,6-11,8 1,4-5,2 0								
							<u> </u>	<u> </u>	_1	trol rod trave

Torque control travel a =

Speed regulation: At 760-765 mihmin less control rod travel

C. Settings for fuel-injection pump with fitted governor

On GOVE	d delivery ernor control lever	Control rod stop at speed	Fuel-de charact	teristics	Startin	
(Test or	temperature 40°) cm³/1000 strokes 2	idle stop	min 4	cm ³ /1000 strokes 5	min 6	cm ³ /1000 strokes 7
750	18 mm RW	12 mm RW	-	-	-	-
						11 02

Checking values in brackets

Testoil-150 4113

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 23,8 c 1. Edition

Replaces

Firm MTU

Engine

MT 6 V 396

PE 6 ZW 160/120 RS 1012/11 RQUV 900 ZWA 53 R

1 - 2 - 3 - 4 - 5 - 6 $0 - 45 - 120 - 165 - 240 - 285^{\circ \pm} 0,5^{\circ} (\pm 0,75^{\circ})$

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Rotational	Control-	2,45-2,65) Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min-:	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	-
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	
			ļ	1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sleeve position 49,5 mm

Upper rated Control lever deflection degrees	mm min 2	Control- rod travel mm min	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	l	Control- rod travel mm 9	min 1	Control- rod travel mm
ca. 70	900 920 940 965	18,0 11,1-12,0 1,4-5,6	-	-	-	-	-	-	-	-
		ļ				<u> </u>				<u> </u>

Torque control travel a =

mm

Speed regulation: At 910-915 min 1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever	Control rod stop at speed		Fuel-delivery characteristics		g fuei y i
(Test oil	temperature 40°) cm³/1000 strokes	idle stop	min . 4	cmi/1000 strokes 5	rnin 6	m:/1000 strokes 7
900	18 mm RW	12 mm RW	-	-	•	-
						14.0

Checking values in brackets

Testoil-150 4113

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 23,8 f

Edition 1.

RQU 750 ZWA 56 R PE 6 ZW 160/120 RS 1012/11

1 -2- 3- 4- 5- 6 0-45-120-165-240-285° -+ 0,5° (+ 0,75°)

Replaces Firm: MTU Engine MT 6 V 396

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from BDZy1. 6 Port closing at prestroke (2.45-2.65)

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min-1	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	ļ
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	-
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	
	1				

Adjust the fuel delivery from each outlet according to the values in [

B. Governor settings

Upper rated Control lever deflection degrees	mm min 1	Control- rod travel mm min 1	Medium ra Control lever flection degrees 4	min 1	Control- rod travel mm	Lower rat Control lever de- flection degrees 7	ed spee min ' 8	d Control- rod travel mm 9	min 10	control Control- rod travel mm
ca. 52	750 720 750 770 780 800	18,0 25,6-30,6 17,0-19,0 6,8-11,8 0,5-8,0 0	-	•	•	-		-	-	-

Torque control travel a =

Speed regulation: At 760-765 min mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	nd delivery ernor control lever il temperature 40°)	Control rod stop at speed 101e Stop	Fuel-de charact		Starting	
min 1	cm ³ /1000 strokes	min ' 3	min · · · 4	cm³/1000 strokes 5	min ' 6	cm³/1000 strokes 7
750	18 mm RW	12 mm RW	-	-	100 with	ca. 20 mm RW starting magnet

Checking values in brackets

WPP 001/4 MTU 23,8 d

1. Edition

Replaces

Engine: MT 6 V 396

PE 6 ZW 160/120 RS 1012/11 RQU 900 ZWA 56 R

1 - 2 - 3 - 4 - 5 - 6 0 -45 -120-165-240-285 - 0,5° (+ 0,75°)

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from BDC) Zyl. 6

Port closing at	prestroke	(2,45-2,05)	To 44	Fuel delivery	Spring pre-tension
Rotational	Control-	Fuel delivery	Difference	l	(torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
mın⁻'	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
1	2	3	14	212 0 505 0	
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	-
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	İ
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	
					<u> </u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sleeve position 49,5 mm

Upper rated Control lever deflection degrees 1			Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 8	Control- rod travel mm 9		e control Control- rod travel mm 11
ca. 52	900 860 880 900 930 960	18,0 26,8-32,4 22,3-26,3 17,0-19,0 3,7-10,0		-	-	-		•	-	

Torque control travel a =

Speed regulation: At

1mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load	d delivery ernor control lever	Control rod stop at speed	op Fuel-delivery characteristics			g tuel y [
(Test or	cm ³ /1000 strokes	idle stop	min . 4	cm 1000 strokes 5	min 6	cm ^{1/} 1000 strokes 7
900	18 mm RW	12 mm RW	-	•	1	ca. 20 mm RW h starting magnet
						11.83

Checking values in brackets

PE 6 ZW 160/120 RS 1012/11 RQU 750 ZWA 57 R

WPP 001/4 MTU 23,8 e

Replaces

Replaces

Firm MTU Engine MT 6 V 396

1- 2- 3- 4- 5- 6 0-45-120-165-240-285° ± 0,5° (± 0,75°)

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Testoil-150 4113

Port closing a	t prestroke / 2	,50-2,60 45-2,65)	mm (from BDC)	Zyl. 6	
Rotational speed min	Control- rod travel	Fuel delivery Average value cm ³ /1000 stroke:	Difference in fuel delivery cm ³ /1000 strokes	Fuel delivery Checking values cm ³ /1000 strokes	Spring pre-tension (torque-control valve)
1	2	3	4	5	
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	-
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sleeve position 49,5 mm

Upper rated Control lever deflection degrees	mm min 2	Control- rod travel mm min	Medium ra Control lever flection degrees 4	min 5	eed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	ed spee min B	d Control- rod travel mm 9	min 10	control Control- rod travel mm
ca. 52	750	18,0	-	-	-	-	-	-	-	-
	720 750 770 780 800	25,6-30,6 17,0-19,0 6,8-11,8 0,5-8,0	İ				·			

Torque control travel a =

mit

Speed regulation At 760-765 minmin less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	id delivery ernor control lever	Control rod stop at speed	op Fuel-delivery characteristics		Starting fuel delivery		
(Test o	temperature 40°) cm³/1000 strokes 2	idle stop	min 4	cm:/1000 strokes 5	min 6	cm ⁻ /1000 strokes 7	
750	18 mm RW	12 mm RW	-	-	-	-	

Checking values in brackets

WPP 001/4 MTU 31,7 a 1. Edition

PE 8 ZW 160/ 120 RS 1013/11

RQUV 300-900 ZWA 51 R

Replaces Firm MTU

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Engine: MT 8 V 396

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from BDQV]_ 8

prestroke (2			O Eugl delivery	Spring pre-tension
Control-	Fuel delivery	Difference		(torque-control
rod travel	Average value	in fuel delivery	Checking values	valve)
l _{mm}	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
2	3	4	5	
18.0	513,0-523,0	16,0(24,0)	510,0-526,0	-
	140,0-160,0	12,0(18,0)	135,0-165,0	
9,0	72,0-92,0	11,0(16,0)	67,0-97,0	
1				
	rod travel mm 2 18,0 9,0	Control- rod travel Average value mm cm³/1000 strokes 2 3 18,0 513,0-523,0 9,0 140,0-160,0	Control- Fuel delivery Difference in fuel delivery cm ³ /1000 strokes 2 3 18,0 513,0-523,0 16,0(24,0) 9,0 140,0-160,0 12,0(18,0)	Control-

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sleeve position 49,5 mm

Upper rated Control lever deflection		Control- rod travel mm min**	Medium ra Control lever flection degrees 4	min	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7		Control- rod travel mm		e control Control- rod travel mm
ca. 85	920 950 1020 1090	18,0-21,5 14,4-18,6 4,0-10,2 0 - 2,0	ca. 30		13,0-15,0 10,0-11,5 8,0 2,5-4,2 0		100 300 450 570	14,2-16,0 8,0 1,6-3,7 0	-	-

Torque control travel a =

Speed regulation: At 910-915 min1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever	Control rod stop at speed		Fuel-de charact	livery eristics	Starting fuel delivery		
(Test or	temperature 40°) cm³/1000 strokes	min 3	Idle	min 4	cm³/1000 strokes 5	min 6	cm ² /1000 strokes 7	
900	18 mm RW		00 mm RW	-	-	-	-	
						<u> </u>	11 83	

Checking values in brackets

WPP 001/4 MTU 31,7 b 1. Edition

Replaces

RQUV 750 ZWA 53 R PE 8 ZW 160/ 120 RS 1013/11

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Firm: Engine MT 8 V 396

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

2,50-2,60 mm (from BDØ)] Port closing at prestroke 45-2.65 Spring pre-tension Fuel delivery Difference Fuel delivery (torque-control Rotational valve) Checking values in fuel delivery Average value rod travel speed cm³/1000 strokes cm3/1000 strokes cm³/1000 strokes min 1 510,0-526,0 16,0(24,0) 513,0-523,0 600 18,0 135,0-165,0 140,0-160,0 12,0(18,0) 9.0 600 67,0-97,0 11,0(16,0) 72,0-92,0 9.0 300

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sleeve position 49,5 mm

ca. 69 750 18,0	Upper rated Control lever deflection degrees	mm min 2	Control- rod travel mm min 3	Medium ra Control lever flection degrees 4	min 5	eed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 8	Control- rod travel mm	min 10	control- control- rod travel mm
	ca. 69	770 790	9,6-11,8 1,4-5,2	-	-			-	-	-	-

Torque control travel a =

Speed regulation: At

760-765 minnim less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-loa	d delivery ernor control lever	Control rod stop at speed	Fuei-de charact		Starting fuel delivery		
(Test or	cm ³ /1000 strokes	idle stop	min 4	cm ³ /1000 strokes 5	min-'	cm³/1000 strokes 7	
750	18 mm RW	12 mm RW	-	-	-	-	

Checking values in brackets

WPP 001/4 MTU 31,7 c 1. Edition

PE 8 ZW 160/120 RS 1013/11

RQUV 900 ZWA 53 R

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Replaces

Engine MT 8 V 396

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from BDØyl. 8

Port clasing		,45-2,65)	D. 44	Fuel delivery	Spring pre-tension
Rotational	Control-	Fuel delivery	Difference	1 467 46	(torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min-:	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
11	2	3	4	5	
600	18,0	513,0-523,0	16,0(24,0)	510,0-526,0	-
600	9,0	140,0-160,0	12,0(18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0(16,0)	67,0-97,0	
			·		
	}		1		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor settings

Sleeve position 49,5 mm

Upper rated spe Control lever deflection degrees	eed	Control- rod travel mm min	Medium ra Control lever flection degrees 4	min 1	ed Control- rod travei mm 6	Lower rat Control lever de- flection degrees 7		cd Control- rod travel mm 9	min 10	control Control- rod travel mm
	900 920 940 965	18,0 11,1-12,0 1,4-5,6 0	-	-	-	-	-	minimm	•	-

Torque control travel a =

C. Settings for fuel-injection pump with fitted governor

Full-loa	d delivery ernor control lever	Control rod stop at speed	Fuel-de charact	livery eristics	Starting fuel delivery		
(Test of	cm ³ /1000 strokes	idle stop	miri 4	cm ³ /1000 strokes 5	mın 6	cm ³ /1000 strokes 7	
900	18 mm RW	12 mm RW	-	-	-	-	
			<u> </u>				

Checking values in brackets

WPP 001/4 MTU 31,7 f 16 Edition

PE 8 ZW 160/120 RS 1013/11

RQU 750 ZWA 56 R

 $1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 \text{ je } 45^{\circ} + 0,5^{\circ} (+ 0,75^{\circ})$

Replaces

Firm MTU

Engine: MT 8 V 396

Note VDT-W-400/305

Ali test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

2,50-2,60 mm (from BD**Z)**1.8 Port closing at prestroke Spring pre-tension Fuel delivery Difference Rotational (torque-control vaive) Checking values in fuel delivery Average value rod travei speea cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes min-1 mm 510,0-526,0 16,0(24,0) 513,0-523,0 18,0 600 135,0-165,0 12,0(18,0) 9.0 140,0-160,0 600 67,0-97,0 11,0(16,0) 72,0-92,0 9.0 300

Adjust the fuel delivery from each outlet according to the values in [

B. Governor settings

Upper rated Control lever deflection degrees 1	mm min 2	Control- rod travel mm min 1	Medium ra Control lever flection degrees 4	min-1	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	ed speed min 8	d Control- rod travel mm 9	mm 10	control Control- rod travel mm
ca. 52	750 720 750 770 780 800	18,0 25,6-30,6 17,0-19,0 6,8-11,8 0,5-8,0	-	-	-	-	-	-	-	-

Torque control travel a = -

Speed regulation: At 760-765 minmin less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever	Control rod stop at speed		Fuel-delivery characteristics		Starting fuel delivery		
(Test or	cm ³ /1000 strokes	idle stop	min 4	cm ^{3/} 1000 strokes 5	min 6	cm ³ /1000 strokes 7		
750	18 mm RW	12 mm RW		-	100 wit	ca. 20 mm RW h starting magnet		

Checking values in brackets

11-83

Testifico 413

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 31,7 d 1. Edition

PE 8 ZW 160/120 RS 1013/11

RQU 900 ZWA 56 R

Replaces

MTU Firm:

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \pm 0;5^{\circ} (\pm 0,75^{\circ})$

Engine MT 8 V 396

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuei-injection-pump settings

mm (from BDZyl. 8

t prestione (Z		0:44	Fuel delivery	Spring pre-tension
Control-	Fuel delivery	Difference	, der dem er	(torque-control
rod travel	Average välue	in fuel delivery	Checking values	valve)
mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
2	3	4	5	
18,0	513,0-523,0	16,0(24,0)	510,0-526,0	-
9,0	140,0-160,0	12,0(18,0)	135,0-165,0	
9,0	72,0-92,0	11,0(16,0)	67,0-97,0	
1	1	1		
	rod travel mm 2 18,0 9,0	Control- rod travel Average value mm cm ³ /1000 strokes 2 3 18,0 513,0-523,0 9,0 140,0-160,0	Control- rod travel Average value in fuel delivery mm cm ³ /1000 strokes 2 3 cm ³ /1000 strokes 4 cm ³ /1000 strokes 4 18,0 513,0-523,0 16,0(24,0) 9,0 140,0-160,0 12,0(18,0)	rod travel Average value in fuel delivery Checking values cm ³ /1000 strokes cm ³ /1000 strokes 5 18,0 513,0-523,0 16,0(24,0) 510,0-526,0 9,0 140,0-160,0 12,0(18,0) 135,0-165,0

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sleeve position 49,5 mm

Upper rated Control lever deflection degrees	mm min 2	Control- rod travel mm min ' 3	Medium ra Control lever flection degrees 4	min '	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	ļ	Control- rod travel mm 9	min 10	Control- rod travel mm 11
ca. 52	900	18,0	-	-	-	-	-	-	-	-
	860 880 900 930 960	26,8-32,4 22,3-26,3 17,0-19,0 3,7-10,0				4.0				

Torque control travel a =

Speed regulation At 910-915 min 1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-loa	ad delivery ernor control lever	Control rod stop at speed	Fuel-de charac	elivery teristics	Starting fuel delivery		
(Test o	cm ³ /1000 strokes	idle stop min 3	min 4	cm ³ /1000 strokes 5	min 6	cm ³ /1000 strokes 7	
900	18 mm RW	12 mm RW	-	-	100 wi	th starting magne	
		Ì				11 02	

Checking values in brackets

restoiriso 411

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 31,7 e 1. Edition

PE 8 ZW 160/120 RS 1013/11

RQU 750 ZWA 57 R

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Replaces

Firm. MTU

Engine MT 8 V 396

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from BD€),1 Ω

Port closing at f	prestroke (2.	45-2 <u>,65</u>)	min (nom boxy).	0	I Carried are tongion
Rotational		Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm 71000 strokes	
1	2	3	4	5	
600	18,0	513,0-523,0	16,0(24,0)	510,0-526,0	_
600	9,0	140,0-160,0	12,0(18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0(16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sleeve position 49,5 mm

Upper rated Control lever deflection degrees	mm min-	Control- rod travel mm min '	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	eŭ spee min 8	Control- rod travel mm	min:	control Control- rod travel mm
ca. 52	750 720 750 770 780 800	18,0 25,6-30,6 17,0-19,0 6,8-11,8 0,5-8,0	-	-	-	-	-	-	-	-

Torque control travel a = -

Speed regulation. At 760-765 min rim less control rod travel

C. Settings for fuei-injection pump with fitted governor

Full-load de	r control lever	Control rod stop at speed	Fuel-de charac	liwery teristics	Starting fuel delivery		
(Test oil ter	mperature 40°) n ³ /1000 strokes	idle stop	min 4	cm ³ /1000 strokes 5	min 6	cm ³ /1000 strokes 7	
750 1	8 mm RW	12 mm RW	•	-	-	-	

Checking values in brackets

WPP 001/4 MTU 47.5 d

1. Edition

PE 12 ZW 160/120 RS 1015/11 RQUV 300-900 ZWA 51 R

Replaces

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

MTU MT 12 / 396

0-45-60-105-120-165-180-225-240-285-300-345°±0,5° (±0,75°)

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke (2,45-2,65)

mm (from BDZyl. 12

Port closing a	Control-	2,45-2,00/ Fuel delivery	Difference	Fuel delivery	torque into
speed	rod travel	Average value	in fuel delivery	Checking mutaria	Section 1
min · ·	mm 2	cm ³ /1000 strokes	cm ³ /1000 strokes	cm //1000 strokes 5	
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	-
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor settings

Sleeve position 49,5 mm

Upper rated Control lever deflection degrees	speed	Control- rod travel mm min '	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 8	Control- rod travel mm	min 10	e control Control- rod travel mm 11
ca. 85		18,0-21,5 14,4-18,6 4,0-10,2 0-2,0	ca.30	200 300 375 500 630	13,0-15,0 10,0-11,5 8,0 2,5-4,2 0		100 300 450 570	14,2~16,0 8,0 1,6-3,7		-

Torque control travel a =

Speed regulation: At 910-915 min-1mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-loa	d delivery ernor control lever il temperature 40°)	Control at speed	rod stop	Fuel-de charact	acteristics		
min `	cm³/1000 strokes	min 3	Idle	min · · 4	cm ³ /1000 strokes 5	min 6	cm ³ /1000 strokes 7
900	18 mm RW	=	300 8 mm RW	-	-	-	-

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Checking values in brackets

En.

WPP 001/4 MTU 47,5 e

1. Edition

Replaces

Engine

PE 12 ZW 160/120 RS 1015/11 RQUV 750 ZWA 53 R

Firm

MT 12 V 396

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6 0-45-60-105-120-165-130-225-240-285-300-345°±0,5° (±0,75°)

Note VDT-W-400/305.

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings 2.50-2.60

and governors

st closing a		2,50-2,60 2,45-2,65)	mm (from BDC) v1	. 12	
Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	vaive)
min-1	mm 2	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes 5	
<u> </u>			 		
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	-
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	ĺ
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sleeve position 49,5 mm

Upper rated Control lever deflection degrees	mm min '	Control- rod travel mm min :	Medium ra Control lever flection degrees 4	min-1	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	į	Control- rod travel mm 9		Control- rod travel mm
ca. 69	750	18,0	-	-	-	-	-	-	-	-
	770 790 810	9,6-11,8 1,4-5,2 0	-							

Torque control travel a =

Speed regulation: At 760-765 minmin less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever	Control rod stop at speed	Fuel-de charact	livery eristics	Starting fuel delivery		
(Test of min-1	cm ³ /1000 strokes	idle stop	min : ' 4	cm³/1000 strokes 5	min '	cm ³ /1000 strokes 7	
750	18 mm RW	12 mm RW	-	-	•		

Checking values in brackets

11.83

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WPP 001/4 MTU 47,5 c

Edition

PE 12 ZW 160/120 RS 1015/11 RQU 750 ZWA 57 R

Replaces 5.83

1-12-9-4-5-8-11-2-3-10-7-60-45-60-105-120-165-180-225-240-285-300-345°±0,5° (±0,75°)

Fuel delivery

Average value

cm³/1000 strokes

513,0-523,0

140,0-160.0

72,0-92,0

Engine: MT 12 V 396

Note VDT-W-400/305

Rotational

speed

min 1

600

600

300

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke (2 (45-2,65) Control-

rod travel

18,0

9,0

9.0

mm

mm (from BDC) Fuel delivery

Difference

in fuel delivery

cm³/1000 strokes

16,0 (24,0)

12,0 (18,0)

11.0 (16,0)

Spring pre-tension (torque-control valve)
•

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Sleeve position 49,5 mm

Checking values

cm3/1000 strokes

510,0-526,0

135,0-165,0

67,0-97,0

Upper rated Control lever deflection degrees 1	mm min 1	Control- rod travel mm min-1 3	Medium ra Control lever flection degrees 4	min 1	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 1	Control- rod travel mm 9	min 10	control Control- rod travel mm 11
ca. 52	750	18,0	-	-	-	-	-	-	-	•
	720 750 770 780 800	25,6-30,6 17,0-19,0 6,8-11,8 0,5-8,0	1							

Torque control travel a =

Speed regulation: At 760-765 min mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever	Control rod stop at speed	Fuel-de charact		Starting fuel delivery		
(Test oi min ⁻¹ 1	temperature 40°) cm³/1000 strokes	idle stop	min '	cm³/1000 strokes 5	min 6	cm³/1000 strokes 7	
750	18 mm RW	12 mm RW	•	-	-	-	

Checking values in brackets

WPP 001/4 MTU 26,5 d

1. Edition

PE 8 ZW 150/120 RS 1019/11

RQUV 300-1200 ZWA 51 R

Replaces Firm

Engine. MB 8 V 331

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \stackrel{+}{=} 0,5^{\circ} (\stackrel{+}{=} 0,75^{\circ})$

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing a	t prestroke (2	,50-2,60 ,45-2,65)	mm (from BDC)y1.	Fuel delivery	Spring pre-tension
Rotational	Control-	Fuel delivery	Difference	1	(torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min-'	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	
1000	10.0	497,0-507,0	15,0 (22,0)	494,0-510,0	_
1000	18,0			⊣	ŀ
600	9,0	131,0-151,0	16,0 (24,0)	126,0-156,0	1
300 -	9,0	70,0-90,0	10,0 (15,0)	65,0-95,0	
	l.				
	1				
	1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees 1	mm min 1	Control- rod travel mm min : 3	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 8	Control- rod travel mm 9	ты п 10	Control- rod travel mm
ca.85	1200 1250 1300 1350 1420	8,0-21,0 12,2-16,8 6,4-11,6 0,4-6,4 0-2,0	ca.30	250 375 500 600 730	12,2-14,6 6,0-7,2 2,6-3,7 0,8-2,1	ca.23	150 300 400 570	14,3-16,1 7,3-8,6 2,8-4,3 0	-	-

Torque control travel a = -

Speed regulation: At 1230-1240 minimal less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever il temperature 40°)	Control rod stop at speed					
min 1	cm ² /1000 strokes 2	min 3 Idle	min 4	cm³/1000 strokes 5	min 6	cm=/1000 strokes 7	
1200	18 mm RW	300 = 8,0 mm RW	-	-	-	-	

Checking values in brackets

Test specifications Fuel injection pumps and governors En.

WPP 001/4 MTU 19,9 b1 1. Edition

PE 6 ZW 150/120 RS 1021/11

RQUV 300-1200 ZWA 51 R

Replaces

Firm MTU

Engine: MB 6 V 331

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from BDQ)/1. 6

Rotational	Control-	2,45-2,65) Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min = 1	mm 2	cm ³ /1000 strokes	cm ³ /1000 strokes 4	cm ³ /1000 strokes 5	
1000	18,0	497,0-507,0	15,0(22,0)	494,0-510,0	-
600	9,0	131,0-151,0	16,0(24,0)	126,0-156,0	
300	9,0	70,0-90,0	10,0(15,0)	65,0-95,0	
		İ			

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Control- rod travel mm min : 3	Control lever flection degrees 4	min 5	Control- rod travel mm 6	Control lever de- flection degrees 7	min .	Control- rod travel mm 9	min 10	Control- rod travel mm
				I				ļ
8,0-21,0 12,2-16,8 6,4-11,6 0,4-6,4	ca. 30	375 500 600	12,2-14,6 6,0-7,2 2,6-3,7 0,8-2,1	ca.23	150 300 400 570	14,3-16,1 7,3-8,6 2,8-4,3 0	-	-
	12,2-16,8 6,4-11,6	12,2-16,8 6,4-11,6 0,4-6,4	12,2-16,8 6,4-11,6 0,4-6,4 375 500 600	12,2-16,8 6,4-11,6 0,4-6,4 375 500 2,6-3,7 600 0,8-2,1	12,2-16,8 6,4-11,6 0,4-6,4 375 6,0-7,2 500 2,6-3,7 600 0,8-2,1	12,2-16,8 375 6,0-7,2 300 6,4-11,6 500 2,6-3,7 400 0,4-6,4 600 0,8-2,1 570	3,0-21,0 0 12,2-16,8 375 6,4-11,6 500 0,4-6,4 600 0,8-2,1 570 300 7,3-8,6 400 2,8-4,3 570 0	375 6,0-7,2 500 2,6-3,7 6,4-11,6 600 0,4-6,4 0,8-2,1 300 7,3-8,6 400 2,8-4,3 570 0

Torque control travel a =

Speed regulation: At 1230-1240 minmless control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever I temperature 40°)	Control ro at speed		Fuel-de cnaract		Startin deliver	
min 1	cm ² /1000 strokes	min	Idle	min 4	cm ² /1000 strokes 5	min 6	cm ³ /1000 strokes 7
1200	18 mm RW		OÓ ,O mm RW	-	_	-	-

Checking values in brackets

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 26,5 b 2. Edition

PE 8 ZW 160/120 RS 1027/11 RQUV 300-1200 ZWA 51 R Komb.-Nr. 0 402 438 024 1-2-6-3-4-5-7-8 je $45^{\circ}\pm0.5^{\circ}(\pm0.75^{\circ})$

RQUV 300-1200 ZWA 51 R

Replaces 5.83 Firm MTU

Engine 331

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke (2.45-2.65)

mm (from B029)1. 8

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
ក ារ	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	
600	18,0	513,0-523,0	16,0(24,0)	510,0-526,0	
600	9,0	140,0-160,0	12,0(18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0(16,0)	67,0-97,0	
			·		
}					

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees		Control- rng 1 travel mm min	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	ed speed min 8	1 Control- rod travel mm 9	Torqu min 10	e control Control- rod travel mm
ca.84	1200	18,0-19,0	ca. 27	375	8,0	ca. 21	300	8,0	-	-
	17,0 4,0 1400	1205-1225 1320-1380 0 - 2,0		200 300 500 7 20	14,3-17,2 10,3-11,8 2,5-3,7 0		200 400 590	10,8-14,2 3,9-5,0 0		

Torque control travel a =

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	ad delivery vernor control lever oil temperature 40°)	Control rod stop at speed	Fuel-de charact		Startin	
min 1	cm ³ /1000 strokes	min 3	min 4	cm ³ /1000 strokes 5	min 6	cm³/1000 strokes 7
		300 .= RW 8,0 mm				
The on t	known full-load deliv the engine in ac engine inspecti					

Checking values in brackets

Test specifications Fuel injection pumps and governors En.

WPP 001/4 MTU 39,7 c

2. Edition

PE 12 ZW 160/120 RS 1029/11 RQUV 300-1200 ZWA 51 R

Komb.-Nr. 0 402 430 009
1 - 12-9-4-5-8-11-2-3-10-7-6

Replaces
5-83
Firm MTU
Engine 331

 $0 - 45 - 60 - 105 - 120 - 165 - 180 - 225 - 240 - 285 - 300 - 345^{\circ} + 0,5^{\circ} + 0,5^{\circ}$

Note VDT-W-400/305 ! All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing a Rotational	Control-	2,45-2,65) Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min ''	mm 2	cm ³ /1000 strokes	cm=/1000 strokes	cm ³ /1000 strokes 5	
600 600 300	18,0 9,0 9,0	513,0-523,0 140,0-160,0 72,0-92,0	22,0(33,0) 12,0(18,0) 11,0(16,0)	510,0-526,0 135,0-165,0 67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees		Control- rod _1 mapel mm min 3	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7		d Control- rod travel mm 9	min 10	e control Control- rod travel mm
ca. 84	1200 17,0 4.0 1400	18,0-19,0 1205-1225 1320-1380 0 - 2,0	ca. 27	200	8,0 14,3-17,2 10,3-11,8 2,5-3,7		300 200 400 590	8,0 10,8-14,2 3,9-5,0 0	-	-

Torque control travel a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

(Test oil tem	r control lever apperature 40)	idle stop	ł		•	Starting fuel delivery		
1 12	1000 strokes برا	min	mirr 4	cm ³ /1000 strokes 5	min 6	cm ³ /1000 strokes 7		
		300 = RW 8,0 mm						
on the	wn l-load delive engine in acc line inspectio	ry is adjusted ordance with n sheet.						

Checking values in brackets

WPP 001/4 DAI 22,4 b

6. Edition

PE 6 ZWM 140/120 RS

RQU 425/1100 ZW 18 D RQU 425/1100 ZW 23 D

Replaces Firm Engine

2.66 Daimler-Benz

MB 333 Ba

1-2-3-4-5-6

0-45-120-165-240-285 · 0,5° (· 0,75°) Note VDT-W 400/305!

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke

mm (from 8DC) Cyl. 6; (1.95-2.15)

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min '	mm	cm /1000 strokes	cm 1/1000 strokes	cm /1000 strokes	
1	2	3	4	5	
600	18	373,0-378,0	11,0(16,0)	369,0-382,0	
600	9	143,0-163.0	14,0(21,0)	148,0-168,0	
200	9	71,0- 91,0	14,0(21,0)	66,0-25,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated	speed	· ·	Medium ra	ted spee	ed	Lower rat	ed spee:	d -	Torqu	e control
Control I		Control-	Control		Control-	Contr 1		Control-		Control-
lever 1		rod	lever		rod	lever de-		rod		rod
deflection	mm	travel	flection		travel	flection		trave!		travel
degrees	min :	mm min '	degrees	min '	mm	degrees	min '	m:n	min '	mm
1	2	3	4	5	6	7	8	9	10	11
ca.60	550	23,5-24,0	Sliding	-bloc	position	ca.22	600	2,8-3,2	500	21,8-22,4
ca.58			0		'		425	6,1-6,5	800	20,8-21,4
	1150				1		200	13,2-14,0	1000	20,2-20,5
	1200	, ,	ł	ļ			350	9,4-11,0	1100	19,9-20,2
	1250	, ,					800	2,3-2,8	1130	max.1mm
	1350		1	l]	1	1100	1,6-2,0		1ess
							1180	0		

Torque control travel a = 0.4 mm +0.05

Speed regulation. At 1130 min⁻¹ timm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor Control lever (Test oil temperature 40^)		Control rod stop at speed	Fuel-de charact		Starting fuel delivery		
min ' 1	cm ³ /1000 strokes 2	min ' 3	min 1	cm ¹ /1000 strokes 5	mın ' 6	cm·/1000 strokes 7	
1080	342,0-346,0	0,5-1,5 mm before stop	900 700 550	318,0-326,0	100	18,0-18,2 mm RW	
					1220	RW max. 5 mm	

Checking values in brackets

Geschaftsbereich KH. Kundendienst. Klz. Ausrustung.

5. by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany Imprimé en Republique Federale d'Allemagne par Robert Bosch GmbH.

WPP U01/4 MTU 29,9 c

9. Edition

PE 8 ZWM 140/120 RS 19/11 Komb.-Nr. 0 406 038 018

RQUV 300-1100 ZWA 40 R

Replaces 2.74 MTU

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Engine MB 837 Ba (660 PS)

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

mm (from BDEVI. 8 Port closing at prestroke (1.95-2.15)

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min' '	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
1	2	3	4	3	
600	18,0	373,0-378,0	11,0 (16,0)	370,0-381,0	
600 200	9,0 9,0	143,0-163,0 71,0-91,0	14,0 (21,0) 14,0 (21,0)	138,0-168,0 66,0-96,0	
1100 300		C Sp 2	9,0 (13,0) 8,0 (12,0)	C Sp 2	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min 2	Control- rod travel mm min 3	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 8	Control- rod travel mm 9	min 10	e control Control- rod travel mm
max. 9	1100	15,0-18,2	-	-	-	26	300	6,8-7,5	-	-
	1150 1200 1250 1330	10,4-14,8 4,8-10,8 0-6,8 0					120 250 400 500 700	12,0-14,0 8,0-10,2 2,8-4,3 0,9-2,9		

Torque control travel a =

Speed regulation At 1130-1145 minum less control rod travel

C. Settings for fuel-injection pump with fitted governor

mm RW
7
18,0-18,2 mm RW
RW max. 5 mm

Checking values in brackets

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 22,4 c

4. Edition

PE 6 ZWM 14C/120 RS 38/11 RQU 425/1100 ZWA 37 DR Replaces 2.83

MTU

Komb.-Nr. 0 406 036 026 1 - 2 - 3 - 4 - 5 - 6 0 -45 -120-165-240-285° ± 0,5° (± 0,75°)

Engine , % 833 Ea 500

Governor adjustement according to VDT-I-420/112 Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test penches and equipment

A. Fuel-injection-pump settings

Rotational	Control-	1 95-2 15) Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
peed	rod travel	Average value	in fuel delivery	Checking values	valve)
mir '	mm 2	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes 5	
600	18,0	373,0-378,0	11,0 (16,0)	370,0-381,0	-
600 200 1080 550 425	9,0	143,0-163,0 71,0-91,0 C, Sp. 2 C. Sp. 5	14,0 (21,0) 14,0 (21,0) 9,0 (14,0) 11,0 (16,0) 12,0	138,0-166,0 66,0-96,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min 2	Control- rod travel mm min 3	Medium ra Control lever flection degrees 4	min	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees	mın 8	Control- rod travel mm 9	mın 10	e control Control- rod travel mm 11
max. ca. 58	600 1100 1150 1200 1250 1350	18,0-18,5 17,6-18,0 13,6-16,2 9,0-12,4 3,6-8,5 0 - 1,0	(Posit slide			ca. 27	200	1,4-1,8 17,0-18,0 10,0-14,0 6,0-6,4 2,6-4,2 1,4-1,8		-

Torque control travel a =

Speed regulation: At 1130 min⁻¹ 1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever		Control rod stop at speed	Fuel-de charact		Starting fuel delivery		
(Test or	cm ³ /1000 strokes	min 3	min 4	idle stop cm:/1000 strokes 5	min : 6	mm RW (XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	
1080	352,0-356,0 (349,0-359,0)	a o	550	277,0-295,0 (273,0-299,0)	100	18,0-18,2 mm RW	
	(3,3,0 003,0)	Shutoff solenoid 0,5 - 1,5 mm in front of stop	425	Idle 57,0-63,0	High 1220	idle speed RW max. 5 mm	

Checking values in brackets

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 29,9 d

2. Edition

PE 8 ZWM 140/120 RS 1018/11 RQU 350-500/1050 ZWA 59 DR Komb.-Nr. 0 406 038 021

Replaces 2.83 Firm MTU

Engine MB 837 Ea

Governor adjustement according to VDT-I-420/112

537 kW (730 PS)

 $1 - 2 - 6 - 3 - 4 - 5 \cdot \cdot 7 - 8$ je 45 ± 0.5 (± 0.75)

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-rump settings

mm (from BDG) Port closing at prestroke

orr closing at		(1,95=2,15)	Difference	Fuel delivery	Spring pre-tension
Rotational	Control-	Fuel delivery	Dillerence	, ,	(torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	(valve)
min · '	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm=/1000 strokes	
1	2	3	4	5	
600	_18,0_	373,0-378,0	11,0 (16,0)	369,0-382,0	
600	9,0	143,0-163,0	14,0 (21,0)	148,0-168,0	
200	9,0	71,0-91,0	14,0 (21,0)	66,0-96,0	
1050		C, Sp. 2	10,0 (15,0)		i
300		C, Sp. 5	9,0		
	ı				

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees 1		Control- rod travel mm min 3	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	ed speed min 8	Control- rod travel mm	min 10	e control Control- rod travel mm 11
ca. 62	700 1070 1150 1230 1300	18,0 17,6-18,0 9,6-14,0 0,4-7,0 0	ca. 43		6,6-9,1 12,0-17,0 0-4,0 0	ca. 27	300 100 200 400 520	7,1-8,3 15,3-18,0 12,0-15,7 1,5-5,2 0	1	-

Torque control travel a =

Speed regulation: At 1075-1085 minimi less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever temperature 40°)	Control rod stop at speed		exxx Bast _C eerlauf	Startin deliver	-
min 1	cm³/1000 strokes	min 3	min 4	cm³/1000 strokes 5	min 6	cm ² /1000 strokes 7
1050	358,0-362,0 (355,0-365,0)	-	300	80,0-90,0	100	Shutoff solenoid 0,5 - 1,5 mm in front of stop

Checking values in brackets

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 26,5 a 2. Edition

PE8ZWM 160/120 RS 1032/11

ROUV300-1200 ZWA 51 R

1-2-6-3-4-5-7-8 je 45° · 0,5° (· 0,75°) Komb.-Nr. 0 406 038 022

Note VDT-W 490/305!

Replaces 2.83 Firm MTC Engine 8 V 331 Hydrofoil

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke (2,45-2,65)

mm (from BDC)

Cv1.8

.	٠ , ۷	.,40-2,00/		<u> </u>	
Rotational	Control	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-contro!
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min '	mm	cm ³ /1000 strokes	cm 1/1000 strokes	cm3/1000 strokes	
1	2	3	4	5	
600	18,0	513,0-523,0	16,0(24,0)	510,0-526,0	
600	9,0	140,0-160,0	12,0(18,0)	135,0-165,0	
300	9,0	72,0- 92,0	11,0(16,0)	67,0-97,0	
		l l	<u> </u>	i	1

Adjust the fuel delivery from each outlet according to the values in [

B. Governor settings

Upper rated	speed		Medium ra	ted spe	ed	Lower rated speed			Torqu	ie control
Control lever deflection degrees 1	mm min 2	Control- rod travel mm min -	Control lever flection degrees 4	min ⁻ 5	Control- rod travel mm 6	Control lever de- flection degrees 7	min 8	Control- rod travel mm 9	min 10	Control- rod travel mm
ca.84	1200	18,0-19,0	ca.27	375	8,0	ca.21	300	8,0	-	-
ca.84	17,0 4,0 1400	1205-1225 1320-1380 0 - 2,0		200 300 500 720	14,3-17,2 10,3-11,8 2,5-3,7		200 400 590	10,8-14,2 3,9- 5,0 0		

Torque control travel a =

Speed regulation. At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	id delivery ernor control lever il temperature 40")	Control rod stop at speed	Fuel-de charact		Startin deliver	
min 1	cm³/1000 strokes	min ' 3	min ¹ 4	cm ⁻ /1000 strokes 5	mın 6	cm ³ /1000 strokes 7
is ac engir with	full-load delive justed on the e in accordance the engine ction sheet.	= RW 3,0 mm				

Checking values in brackets

Geschaftsbereich KH. Kundendienst. Kfz:Ausrustung.

6. by Robert Bosch GmbH. D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 29,9 f

1. Edition

Replaces

Firm MTU

Engine UB 837 EA -Italien

Komb.-Nr. 0 406 038 024 1-2-6-3-4-5-7-8 je 45° $\stackrel{+}{=}$ 0,5 ° ($\stackrel{+}{=}$ 0,75°)

Governor adjustement according to VDT-I-420/112

PE 8 ZWM 150/120 RS 1035 RQU 300-500/1100 ZWA 59 DR

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump, test benches and equipment

A. Fuel-injection-pump settings

2,5-2,6 (2,45-2,65)
Port closing at prestroke

on closing a	it prestione				
Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min :	mm	cm ³ /1000 strokes	cm ² /1000 strokes	cm³/1000 strokes	
1	2	3	4	5	
1000	18,0	527,0-537,0	14,0 (21,0)	524,0-540,0	
1000 300	9,0 9,0	175,0-195,0 104,0-124,0	12,0 (18,0) 16,0-(24,0)	170,0-200,0 99,0-129,0	
1100 800 425	12,3 13,2 6,7	Abschn. C	12,0 (18,0) 16,0 (24,0) 12,0		

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm m	Control- rod travel mm 而何而.1. 3	Medium ra Control lever flection degrees 4	min 5	Control-	Lower rat Control lever de- flection degrees 7	ed speed min 8	d Control- red travel mm 9 *	min 1	e control Control- rod travel mm 11
ca. 65	800	18,0-18,5	ca39	500	7,0	ca. 33	425	6,6-6,9	100	12,3
	1100 11,3 5,0 0	12,3 1125-1140 1189-1215 1255-1275	ca. 19	300	7,0		300 400 500 535	13,0-15,0 7,8-9,0 1,0-3,3 0 - 0,5	800	13,1+0,2

Torque control travel a = 0,2

mm+0,5

Speed regulation. At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	delivery rnor control lever temperature 40°)	Control rod stop at speed	Fuel-delive/y characteristics		Starting fuel delivery		
min '	cm³/1000 strokes 2	min 3	mın 4	cm ³ /1000 strokes 5	min 6	cm=/1000 strokes 7	
1100	302,0-308,0 (300,0-310,0	700) (Lasche)	800	331,0-35i,0 (326,0-356,0)	425	53,0-59,0	

Checking values in brackets

Testoil-150 4113

Test specifications Fuel injection pumps and governors En.

WPP 001/4 MTU 44,3 a

3. Edition

PE 8 ZWM 160/120 RS 2001

RQUV 300-1050 ZWA 65 R

Replace 5.83

Komb.-Nr. 0 406 038 023

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^{\circ} \stackrel{+}{=} 0,5^{\circ} (\stackrel{+}{=} 0,75^{\circ})$

Engine: 396-03 960 kW

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

2,5-2,6Fort closing at prestroke (2,45-2,65)

mm (from BDay 1. 8

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed min-1	rod travel	Average value cm ³ /1000 strokes	in fue! delivery cm ² /1000 strokes 4	Checking values cm ³ /1000 strokes 5	valve)
1000 1000 300	18,0 9,0 9,0	622,0-636,0 220,0-248,0 104,0-128,0	20,0 (30,0) 28,0 (42,0) 6,0 (24,0)	619,0 - 639,0 215,0 - 253,0 99,0 - 133,0	-

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min '	Control- rod Wive 1 mm min 1	Medium ra Control lever flection degrees 4	min 1	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 8	control- rod travel mm 9	min 10	e control Control- rod travel mm
ca. 82	1050 17,0 4,0 1250	18,0 1055-1075 1150-1210 0-2,0	ca. 27	375 200 300 500 720	8,0 14,3-17,3 10,3-11,8 1,9-3,7 0	\$	300 200 400 590	8,0 10,8-14,2 3,9-5,0 0	-	-

Torque control travel a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	ad delivery ernor control lever	Control rod stop at speed	Fuel-de charact		Startin	
(Test o	cm ² /1000 strokes	idle stop	min 4	cm³/1000 strokes 5	min 6	cm ³ /1000 strokes 7
		300 = RW 8,0 mm	-	-	-	-
The	known full-load deliv the engine in ac engine inspect	very is adjusted cordance with ion sheet.				

Checking values in brackets

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 47,5 a

4. Edition

PE 12 ZWM 160/120 RS 2002

RQUV 300-1050 ZWA 65 R

Replaces 4.83 MTU

1-2-9-4-5-8-11-2-3-10-7-6 0-45-60-105-120-165-180-225-240-285-300-345 ° -0,5°(-0,75°)

Engine 12 V 396-03

1440 kW

Note VDT-W-400/305

All test specifications apply only to Bosch fuel-injection pump test benches and equipment b.-Nr. 0 406 030 002

A. Fuel-injection-pump settings

mm (from 3070x1 ... 12

Port closing a Rotational	Control-	(2.45-2.65) Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min-'	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm³/1000 strokes	
1	2	3	4	3	
1000	18,0	622,0-636,0	20,0 (30,0)	619,0-639,0	
1000	9,0	220,0-248,0	28,0 (42,0) 16,0 (24,0)	215,0-253,0 99,0-133,0	
300	9,0	104,0-120,0	10,0 (24,0)	33,0-200,0	
					Ì
}				<u> </u>	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	1	Control- rod _1 mai/81 mm min 3	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rate Control lever de- flection degrees 7	min 8	Control- rod travel mm	min 1	e control Control- rod travel mm
ca. 82	1050	18,0	ca. 27	375	8,0	ca. 21	300	8,0	_	-
	17,0 4,0 1250	1055-1075 1150-1210 0 - 2,0		200 300 500 720	14,3-17, 10,3-11, 1,9-3,7		200 400 590	10,8-14,2 3,9-5,0 0		

Torque control travel a =

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever		Control at speed		Fuel-delivery Starting fuel delivery		7	
(Test or min	it temperature 40) cm:/1000 strokes 2	idle	stop	min. 4	cm:/1000 strokes 5	min 6	cm ³ /1000 strokes 7
		3	300 RW 8,0 mm				
The on t	known full-load deli the engine in a engine inspect	obundar	ice with				

Checking values in brackets

Test specifications Fuel injection pumps and governors En.

WPP 001/4 MTU 23,7 a

2. Edition

PE 6 ZWM 160/120 RS 2004

RQUV 300-1050 ZWA 65 R

Replaces 4.83 MTU Firm Engine:396-03

Kemb.-Nr. 0 406 036 034 1-2-3-4-5-6

0-45-120-165-240-325 ° + 0,50 (+ 0,75 °)

720 kW

Note VDT-W-400/305 !
All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

2.5-2.6

Port closing a Rotational	Control-	Fue: delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel Average va		in ruel delivery cm ³ /1000 strokes 4	Checking values cm ³ /1000 strokes 5	valve)
1000 1000 300	18,0 9,0 9,0	622,0-636,0 220,0-248,0 104,0-128,0	20,0 (30,0) 28,0 (42,0) 16,0 (24,0)	619,0-639,0 215,0-253,0 99,0-133,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees		Control- MPH -1 travel mm min	Medium ra Control lever flection degrees 4	min 5	ed Control- rod travel mm 6	Lower rat Control lever de- flection degrees 7	min 8	Control- rod travel mm 9	min 10	e control Control- rod travel mm
ca. 82	1050	18,0	ca. 27	375	8,0	ca. 21	300	8,0	-	-
		1055-1075 1150-1210 0 - 2,0		200 300 500 720	14,3-17,2 10,3-11,8 1,9-3,7		200 400 590	10,8-14,2 3,9-5,0 0		

Torque control travel a =

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	ad delivery vernor control lever	Control rod stop at speed	Fuel-de charac	elivery teristics	Startin	•
(Test of min 1	cm ³ /1000 strokes	idle stop	min 4	cm ³ /1000 strokes 5	min 6	cm:/1000 strokes 7
		300 = RW 8,0 mm				
The	known full-load delive he engine in acc engine inspectio	proance with				

Checking values in brackets

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 BMW 2,4 a

1. Edition

VE 6/10 F 2400 R 121

0 460 406 022 DHK: 1 688 901 022 / 130 bar company BMW

M 21 D 24-Europa

COA VIDT-W-460/

6x2x450 mm / 1 680 750 973°; Overflow temperature 45° C

Test pressure line

All test specifications are valid only for Bosch Fuei-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

rie-siroke setting	mm			286 AD1.44-400/	
1. Settings	Rot speed rev/min	Settings		Charge-air pressibar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,3-4,7	mm	1,050	
1 2 Supply pump pressure	1500	6,1-6,5	bar (kgf/cm²)	1,050	
1 3 Full-load delivery without	500	28,0-29,0	cm³/1000 strokes	0	3,0
charge-air pressure Full-load delivery with	1500	40,8-41,8	cm³/1000 strokes	1,050	2,5
1.4 Idle speed regulation	400	6,0-10,0	cm ³ /1000 strokes	0	3,0
1 5 Start	250	35,0-36,0	cm ³ /1000 strokes	0	
† 6 Full-load speed regulation	2600	17,5-23,5	cm ³ /1000 strokes	1,050	
1.7 Load-dependent start of delivery	-				

2. Test Spe	cifications	checking values in bi				
2.1 Timing device LDA=1,050	n = rev/min mm	500 (*) 1,1-1	750 ,9(0,8-2,2)	1000 150 (*) (3,8-	_	2300 ,4-8,2(7,1-8,5)
2.2 Supply pump LDA=1,050	n = rev/min bar (kgf/cm²)	500 3,2-3,6			2300 8,1-8,5	5
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40	-153)		2400 55-138(40	0-153)
2.3 Fuel delivenes		A			3. Dime	for assembly
Speed control lever	Rot.speed	Fuel delivery cm ³ /1000 strakes		Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	2700 2600 2400 1500 ** 750 500	7,0-13,0 40,6-42,6 34,5-35,5	(6,0-14,0) (16,5-24,5) (39,4-43,8) (39,1-43,5) (32,0-38,0) (25,5-31,5)	1,050 1,050 1,050 1,050 0,250	K KF MS SVS	3,2-3,4 6,3-6,6 1,5-1,7 4,0
switch-off	2400	0			A 8	
Idle stop	400 475	max. 3,0	(4,0-12,0)		Observations *Test	hydr. cold- accelerator:
End stop	100 400 480	26,5-36,5 31,5-41,5 25,2-29,8			Please	note instruc- on sheet 2.
		UVV min	10 //		**Corre	ction at the

2.4 Solenoid

max. cut-in voltage

adjusting nut (46).

xxx min. 10 V

restant rated voltage 12V.

* Test hydr. cold-start accelerator:

```
Apply 12 V to magnet of hydr. cold-start accelerator. 500 1/min 1.9 - 2.9 (1.7-3.1) 1000 1/min 3.7 - 4.7 (3.5-4.9)
```

** Manifold-pressure compensator stroke = 4.3 mm

En

WPP 001/4 HAN 3,1 e 2

2. Edition

En

stoil-ISO 4113

VA 6/100 H 1300 BR 54-3 O 460 306 100 supersedes 6.82
company Hanomag
D 162 R-92 PS

O,3
Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

1. Settings	rev/min	Settings		Charge air press kp/cm	Difference in delivery cm ³
1.1 Timing device travel	900	3,0-4,0	mm	• • • • • • • • • • • • • • • • • • •	
1.2 Supply pump pressure	900	4,7-5,2	kp/cm*		
1.3 Full-load delivery without	1100	57,0-58,0	cm ³ /1000 strokes		2,5
charge-air pressure Full-load delivery with charge-air	-	-	cm ¹ /1000 strokes		
pressure 1.4 Idle speed regulation	300	12,0-18,0	cm³/1000 strokes		3,0
15 Start (mech.)	100	mind.65,0	cm ⁴ /1000 strokes		
1.6 Full-load speed regulation	1430	38,5-46,5	cm ³ /1000 strokes	i	

2. Test Sp	ecificat	Ons Checking values in bracket		4000 4450
2.1 Timing device	rev/min	580-730 (550-760) Beginn	900 (2,7-4,3)	1000-1150 4,7-5,4 (4,4-5,7)
22 Supply pump	rev/min kp/cm ²	100 1,1-1,6 (0,9-1,8)	900 (4,5-5,4)	1300 5,9-6,4 (5,7-6,6)
Overflow delivery	rev/min cm³/10 s	500 mind. 25	1000 55-125 (40-140)	

Overnow genvery	cm ³ /10 s	mind. 25	55-125 (4	10-140)			
23 Fuel deliveries							
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge air pressure kp/cm			
End stop	Full	1480-1530 (1460-1550)	0	47.5			
	!	1430 1300 1100	158.0-61.0 (57.0	5-47,5) 0-62,0) 5-58,5)			
		500	(56,5 50,0-53,0 (49,0	0-54,0)			
	Stop	1300	0				
	6.0	450-570	0	1			
Idle stop	Full	(430–590) 300		0-19,0)			
	Start	100	mind. 65,0				
Fnd stop	: •	mind. 150	i				

Angle to the stop-plate	Pre-setting dimensions
Pump a = 25 ± 4° b = 40 ± 8° c = 30 - 8° d = 50 ± 8°	Pump Dimension IV = 6,0 mm (s.a.BMP 161/32) Dimension V = - mm

WPP 001/4 IHC 4,4 d

2. Edition

<u>En</u>

stoil-ISO 4113

6.82 VA 4/11 H 1250 CR 93-2 VA 4/11 H 1250 CR 93-2 VA 460 314 045 VA 4/11 H 1250 CR 93-2 Company IHC engine D 268/510

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0.5 mm Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

1 1	. Settings	rev/min	Settings		Charge-air press kp/cm	Difference in delivery cm ²
	Timing device travel	1000	6,1-6,7	mm		
1.2	2 Supply pump pressure	1000	5,5-6,0	kp/cm*	•	
1	3 Full-load delivery without charge-air pressure	800	80,5-81,5	cm ² /1000 strokes	;	2,5
 	Full-load delivery with charge-air pressure	400	12,0-18,0	cm ² /1000 strokes		3,0
14	I Idle speed regulation	100	mind. 95,0	cm 1/1000 strokes		•
15	5 Start	1330	34,0-42,0	cm³/1000 strokes		
16	Full-load speed regulation	1330	57,0742,0	cin /1000 strokes		

cifications	Checking values in brackets		
//min	500	1000	1250
n	0,5-1,5 (0,3-1,/)	(5,9-6,9)	7,0-7,7 (6,8-7,9)
	200	1000	1250
	1,5-2,0 (1,3-2,2)	(5,3-6,2)	6,2-6,7 (6,0-6,9)
/cm·			
//mia	500		1250
	55-100 (40-110)		√ 55-100 (40-110)
,	/min	7min 0,5-1,5 (0,3-1,7) 200 1,5-2,0 (1,3-2,2) 7min 500	7min 500 1000 (5,9-6,9) 200 1000 (5,9-6,2) 7min 500 (70-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm/
End stop	Fult	1400-1450	0		
		1330	:	(33,0-43,0)	
		1200	84,5-87,5	(83,5-88,5)	•
		800 500	78.0~82.0	(80,0-82,0) (77,0-83,0)	
					İ
		4050			
	Stop	1250	0		
					1
idte stop	Full	470-520	0		
		400		(11,0-19,0)	
End stop	Start	100	mind. 95,0		
Life 3 cop	i	}			

Angle to t	he stop-plate	Pre-setting dimensions
Pump α β γ	= 25 ⁺ 4° = 36 ⁺ 3° = 30 - 8° = 60 ⁺ 8°	Pump Dimension IV = - Mill Dimension V = - Mill
		•

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WPP 001/4 FIA 2,6 c

4. Edition

toil-ISO 4113

VA 3/11 H 1200 CL 134-9 0 460 313 019

supersedes 6.82 Fiat company 8035-04265

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

Ail test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

0,7 ±0,02 (±0,04)
Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press	Difference in delivery cm ³
1.1 Timing device travel	800	4,1-5,1	mm		
1.2 Supply pump pressure	800	4,8-5,3	kp/cm·	:	
1.3 Full-load delivery without	800	68,0-69,0	cm ³ /1000 strokes		2,5
charge-air pressure Full-load delivery with charge air	-	•	cm 1/1000 strokes		
pressure	300	17,0-23,0	cm³/1000 strokes		3,0
1.4 Idle speed regulation	100	mind.120,0			
1.6 Full-load speed regulation	1300	36,0-44,0	cm:/1000 strokes		

2.1 Timing device	16x1111111	ns Checking value Beginn 330–430 1,	8-2,8(1,6-3,0	800 10 3)(3,9-5,3) 6	50 1100-1230 ,9-7,9(6,7.7,1)9,0-9,6
2 2 Supply pump	mm rev/min	200	80	00	(8,8-9,3) 1200
z z Supply pump	kp/cm·	1,7-2,1(1,5 500	-2,3) (4,6-	-5,5)	6,6-7,1(6,4-7,3) 1200
Overflow delivery	rev/min cm³/10 s	55-100(40-1	10)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm
End stop	Full	1360-1410	0		
		1300	Dogina	(35,0-45,0)	
	İ	1250-1270 1200	Beginn 61,0-64,0	(60,0-65,0)	
		800 500	62,5-66,5	(67,5-69,5) (61,5-67,5)	
	Stop	1200	0		
idle stop	Full	340-400	0		
		300		(16,0-24,0)	
	Start	100	mind.120,0		
End stop	Jon	110-230			1

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 3^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\gamma = 60 + 8^{\circ}$	Pump Dimension v= 3,80 mm Dimension v= 24,65 mm

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WPP 001/4 FIA 3,5c 3. Edition

__E

Testoil-ISO 4113

VA 4/110 H 1250 CL 136-8 D 460 314 038

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

Pre-Stroke setting 0.5 ± 0.02 (± 0.04)
Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

supersedes 6.82 company Fiat

engine 8045-02270 66 PS

All test specifications are valid for Bosch Fuel injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

1. Settings	rev/min	Settings		Charge-air press	Difference in delivery cm ²
1.1 Timing device travel	1000	5,3-6,3	നന		
1.2 Supply pump pressure	1000	5,3-5,8	kp/cm ⁻	•	
1.3 Full-load delivery without charge-air pressure	800	67,5-68,5	cm ¹ /1000 strokes	, ,	2,5
Full-load delivery with charge-air pressure	· -	-	cm ³ /1000 strokes		
1.4 Idle speed regulation	300	22,0-28,0	cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 110,0	c/m³/1000 strokes		
1.6 Full-load speed regulation	1400	26,0-34,0	cm - 1000 strokes	i	

2. Test Sp	ecificati	ONS Checking values in brackets		
2.1 Timing device	rev/min	700	1000	1250
-	mm	2,4-3,2 (2,1-3,5)	(5,1-6,5)	6,0-6,7 (5,6-7,0)
2.2 Supply pump	rev/min	200	1000	1250
2.2. Supply point	kp/cm*	1,5-2,0 (1,3-1,8)	(5,1-6,0)	6,2-6,7 (6,0-6,9)
Overflow delivery	rev/min	500		1250
Green Genton,	cm ³ /10 s	55-100 (40-110)	55-1	00 (40-110)

23 Fuel	deliveries
---------	------------

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ¹
End stop	Full	1450~1500 1400	0	(25,0-35,0)
	1 3	1250 800		(64,5-69,5) (66,5-69,5)	
		500	59,0-62,0	(58,0-63,0)	
	Stop	1250	0		
ldle stop	Full	400-450	0		
		300	!	(21,0-29,0)	
	Start	100	mind. 110	,0	
End stop		110-230			

Angle to the stop	o-plate	Pre-setting dimensions
, =	25 ± 4° 35 ± 8° 30 - 8° 60 + 8°	Pump Dimension IV = 3,00 mm Dimension V = 24,65 mm

Prestroke setting of the pointer at a stroke of 1 mm in

WPP 001/4 FIA 5,5 n

1. Edition

supersedes Fiat VA 6/11 H 1200 CR 185-4 company 8065-02 0 460 316 042

> Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel injection Pump Test Benches

and Testers Test Intructions and Test Equipment VDT WPP 161 4 B

relation to outlet "/	Pre-setting see reverse side					
1. Settings	, ten luiu		Settings		Charge-air press	Difference in delivery cm ²
1 * Timing device travel	9	900	5,9-6,7	mm		
1.2 Supply pump pressure	9	900	5,0-5,5	kp/cm ⁻	•	
1.3 Full-load delivery without	g	900	68,0-69,0	cm³/1000 strokes		3,0
charge-air pressure Full-load delivery with charge-air		-	-	cm 1/1000 strokes		
pressure 1.4 Idle speed regulation	3	350	12,0-18,0	cm 1/1000 strakes	;	3,0
	. 1	100	min.90,0	cm³/1000 strokes	,	
1.5 Start 1.6 Full-load speed regulation	13	300	22,0-30,0	cm /1000 strokes		

2. Test Sp	ecificati	ONS Checking values in brackets		
2.1 Timing device	rev/min mm	500	900 (5,6-7,0)	
2.2 Supply pump	rev/min	200 1,4-1,9(1,2-2,1)	900 (4,8-5,7)	1200 6,2-6,7(6,0-6,9)
Overflow delivery	rev/min cm ³ /10 s	500 55-100(40-110)		1200 55-100(40-110)

2	,	3	Fu	el	d	e١	١٧	er	ıe	S

Speed control lever	Delivery lever	rev/min	cm1/1000 strokes	Charge air pressure kp/cm
End stop	Full	1330-1380	0	
		1300 1180 900 500	•	(21,0-31,0) (59,5-64,5) (67,5-69,3) (52,0-57,0)
	Stop	:	:	
Idle stop	Full	350 440-490	0	(11,0-19,0)
End stop	Start	100 110-230	min. 90,0	

Angle to the stop-plate	Pre-setting dimensions
Pump a = 25 ± 4° b = 54 ± 8° c = 30 - 8° c = 60 + 8°	Pump Dimension ♥ 1,0 mm Dimension ⊭ 24,65 mm

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WPP 001/4 FIA 3,6 a

4. Edition

Testoil-ISO 4113

VA 4/110 H 1600 CR 190 0 460 314 033 Supersedes Fiat company 8040.04

> Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

0,5 ± 0,02 (± 0,04)

Procedure of 1 mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

1. Settings	rev/min	'Settings		Charge air press kp/cm	Difference in delivery cm."
1.1 Timing device travel	1000	4,6-5,4	mm		The same of the sa
1.2 Supply pump pressure	1000	5,2-5,7	kp/cm ¹		
1.3 Full-load delivery without charge-air pressure	700	67,0-68,0	cm ³ r1000 strokes		2,5
Full-load delivery with charge a		-	cm 1/1000 strokes		•
pressure 1.4. Idle speed regulation	300	9,0-15,0	cm ¹ /1000 strokes	i t	3,0
15 Start	100	mind. 110,0	cm 11000 strokes	• •	; ;
1.6 Full-load speed regulation	1750	41,0-49,0	cm /1000 strokes	 - 	

2. Test Sp		ONS Checking values in bracket	1000	1400	1600
2.1 Timing device	rev/min mm	1,5-2,5(1,3-2,7)	(4,3-5,7) 8,0-9	9,0(7,8-9,2)	8,9-9,6(8,5-9,9
22 Supply pump	rev/min	400 2,2-2,7 (2,0-2,9)	1000 (5,0-5,9)	-	1600 8,6 (7,9-8,8)
Overflow delivery	rev/min cm ³ /10 s	500 55-100 (40-110)		1600 55-100 (40	-110)

23 Fuel	deliveries
---------	------------

Speed control lever	Delivery lever	revimin	cm ³ /1000 strokes	Charge-air pressure kp/cm:
End stop	Fuil	1900-2000 1750 1600 1000 700 500	0 (40,0-50,0 59,5-62,5 (58,5-63,5) 67,0-70,0 (66,0-71,0) × (66,5-68,5) 56,5-59,5 (55,5-60,5)	
	Stop	1600	0	
idle stop	Full	330-380	0	
		300	(8,0-16,0)	
End stop	Start	100 300-400	mind. 110,0	

Angle to the sto	op-plate	Pre-setting dimensions
й =	25 ± 4° 50 ± 8° 30 - 8° 60 + 8°	Pump Dimension IV Dimension V 24,65 mm

WPP 001/4 STE 2.6 a

3. Edition

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	4	
	3	
	esto	
1	-	ł

Pre-stroke setting

superseded.81 VA 3/10 H 1200 CR 411 companySteyr 0 460 303 158

Nozzle-and-holder assembly

1 688 901 020 (172 + 3 bar)

0,5 mm ± 0,02 (± 0,04)

WO 311.40

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT WPP 161-4 B

Pre-setting see reverse side

Charge-air press Difference in delivery Settings 1. Settings ko/cm Cm 5,6-6,6 1000 mm 1.1 Timing device fravel 4,9-5,31000 kp/cm 1.2 Supply pump pressure 2,5 65,5-66,5 1150 cm¹/1000 strokes 1.3 Full-load delivery without charge-air pressure

cm /1000 strokes Full-load delivery with charge-air 3.0 12.0-18.0 pressure 300 orn 1/1000 strokes 1.4 Idle speed regulation mind. 70,0 100 cm1 1000 strokes 1.5 Start 36,0-44,0 1300 6 Full-load speed regulation

2. Test Specifications Checking values in hrackets 700 1000 2.1. Timing device (5,4-6.8)2,7-3,7 (2,4-4,0) Beginn 1200 2.2. Supply pump revimin 5,6-6,0 (5,4-6,2) 1,2-1,6 (1,0-1,8) (4,7-5,5) kn/cm 1200 55-100 (40-110) 55-100 (40-110) Overflow gelivery rev/min cm²¹10 s

2.3 Fuel deliveries Charge-air pressure kp/cm cm^{1/1}000 strokes Speed control lever Delivery lever 1360-1410 0 (35,0-45,0)1300 (65, 0-67, 0)1150 68,5-70,5 (67,5-71,5)1000 (53,5-58.5)54.5-57.5 500 0 1200 Stop 380-430 idle stop (11,0-19,0)300 mind. 70,0 100 Start

End stop

170-250

Angle to t	ne stop-plate	Pre-setting dimensions	
Pump 1 3	= 25 ⁺ 4° = 44 ⁺ 8° = 30 - 8° = 60 + 8°	Pumb Dimension IV = 2,70 mm Dimension V = 24,65 mm	

Test Specifications 6 Distributor-type

Fuel-injection Pumps

mm

T 6.354.4

see VDT-W-460/

0

WPP 001/4 PER 5.8 c 2

Edition

company Perkins

VE 6/12 F 1300 L 21-3

1.7 Load-dependent port-closing

0 460 426 022

DHK: 1 688 901 020

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

100

Test Instructions and Test Equipment

02.84

Pre-stroke setting Charge-air press bar (kgf/cm²) Difference in Settings Rot. speed 1. Settings delivery cm3 rev/min 0,8 3,8-4,2 800 1.1 Tirring device travel 0,8 4,4-5,0 800 bar (kgf/cm²) 1.2 Supply-pump pressure 0,8 3.5 99.5-100.5 1000 cm³/1000 strokes 1.3 Full-load delivery with charge-air pressure 72,0-73,0 500 cm³/1000 strokes Full-load delivery without 3.5 charge-air pressure 8,0-12,0 cm³/1000 strokes 270 1.4 idle regulation 0.8 47,0-53,0 cm³/1000 strokes 1480 1.5 Full-speed regulation

min. 90,0 cm³/1000 strokes

2. Test Spec	cifications	checking values in brackets ()	
2.1 Tirming device	n = rev/min	500	800	1300
LDA=0,8 bar	mm	0,9-1,7(0,6-2,0)	(3,3-4,7)	4,6-5,3(4,2-5,6)
22 Supply pump	n = rev/min	500		1300
LDA=0.8 bar	bar (kgf/cm²)	3,1-3,7		6,4-7,0
Overflow delivery	n = rev/min cm²/10 s	500 55-138(40-153)		1300 (0,8 bar) 55-138(40-153)

2.3 Fuel delivenes					SiONS for assembly
Speed control lever	! Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kg1/cm²)	Designation	and adjustment mm
End stop	1650 1550	max. 1,0 7,0-15,0 (6,0-16,0)	0,8 0,8	K	3,2-3,4
	1480 1300	(45,0-55,0) 91,0-94,0 (87,5-97,5)	0,8 0,8	KF	5,1-5,3
	1000	(97,0-103,0)		MS	0,9-1,1 max.6,0
	*700 500	80,5-81,5 (77,2-84,8) (68,7-76,3)	0,2 0	SVS	
			and the second of the second o	∡ XK	20,2-22,2
switch-off	1300	0		eχL	11,7-15,1

idle stop	40 32 27	20 min. 1,0	Observations * Manifold-pressure compensator stroke = 4.5 mm
End stop	12	20 min. 90,0 50 max. 74,0	Correction at the adjusting nut. (46)

2.4 Solenoid max. cut-in voltage min. 10 V XXX rated voltage 12V 'SS XS SO S

WPP 001/4 REN 2,0 b

2. Edition

VE 4/9 F 2250 R 41

supersedes Renault company 852

test specifications are	a valid only for Bo	osch Fuel-injection Pump	fest Benches and Teste	15	Test instructions at see VDT-W-460/	nd Test Equipment
e-stroke setting		mm Rot speed	\$ettings		Charge-air press	Difference in delivery cm ³
. Settings		revimin 1400	4,4-4,8		Dai (kg//c///	
1.1 Timing device trav	el	1400	4,9-5,5	mm		
1 2 Supply-pump pres	ssure	•	39,0-40,0	bar (kgf/cm²)		2,5 (3,0)
1 3 Full-load delivery		1400	39,0-40,0	mm ³ /1000 strokes		_,.
charge-air pressur Full-load delivery	without			cm ³ /1000 strokes		0.5 (2.0)
charge-air pressur 1 4 Idle regulation	re	400	7,5-11,5	cm ³ /1000 strokes		2,5 (3,0)
1 5 Full-speed regular	tion	2400	17,0-23,0	cm ³ /1000 strokes		
1 6 Start		100	min. 52,0	cm ³ /1000 strokes		
1.7 Load-dependent	port-closing	1400				
2. Test Spe	cification	S checking values in b	rackets ()			
2 1 Timing device	n = rev/min mm	1000 2,6-3,4 (2,3-3,7)	1400 (3,9-5,3)		000 5 (6,4-7,8)
2.2 Supply pump	n = rev/min bar (kgt/cm²)	1000 3,9-4,5			2000 6,5-7,1	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-110 (4	0-125)	55	2250 5-110 (40-12	25)
2.3 Fuel deliveries	<u></u>				3. Dimer	sions for assembly
Speed control lever	; Rot speed	Fuel delivery cm ³ /1000 strokes_		Charge-air press oar (kgf/cm²)	Designation	and adjustment mm
End stop	2550	max. 2,0			ĸ	2 2 2 4
	2400	24 5 22 5	(16,0-24,0)		KF	3,2-3,4 5,7-5,9
	2200	31,5-33,5 32 5-34 F	5 (30,2-34,8) 5 (31,2-35,8)) }		1,4-1,6
	2100 1400	32,3-34,4	(37,2-41,8)	,	MS	•
	1000	35,5-38,5	5 (34,0-40,0)	svs	max. 3,5
				ه ۱۰ سامان موسوس	A XK	20,1-22,
switch-off	2250	0			a XF	9,5-13,
idle stop	650	max. 5,0	(5,5-13,5)		Observations	
	400		(5,5-13,5)			
End stop	320 430	min. 45,0 max. 45,0) 			

2.4 Solenoid

xxx min. 10.0 V rated voltage 12V.

46

WPP 001/4 REN 2,0 d

3. Edition

En

VE 4/9 F 2200 R 69

0 460 494 055

Over now temperature 45° C

supersedes 3.83
company Renault
engine: J 8 S - 702

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/.

: Rot. speed	Śettings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1400	3,9-4,3	mm	0,74	
1400	5,1-5,7	bar (kgf/cm²)	0,74	
,	35,0-36,0	cm ³ /1000 strokes	0	•
	50,0-51,5	cm ³ /1000 strokes	0,74	2,5 (3,0)
	9,0-13,0	cm ³ /1000 strokes	0	2,5 (3,0)
	23,0-29,0	cm ³ /1000 strokes	0,74	
	min.50,0	cm ³ /1000 strokes	0	
	-		:	
	rev/min	1400 3,9-4,3 1400 5,1-5,7 600 35,0-36,0 1400 50,0-51,5 350 9,0-13,0 2400 23,0-29,0	1400 3,9-4,3 mm 1400 5,1-5,7 bar (kgt/cm²) 600 35,0-36,0 cm³/1000 strokes 1400 50,0-51,5 cm³/1000 strokes 350 9,0-13,0 cm³/1000 strokes 2400 23,0-29,0 cm³/1000 strokes	1400 3,9-4,3 mm 0,74 1400 5,1-5,7 bar (kgt/cm²) 0,74 600 35,0-36,0 cm³/1000 strokes 0 1400 50,0-51,5 cm³/1000 strokes 0,74 350 9,0-13,0 cm³/1000 strokes 0 2400 23,0-29,0 cm³/1000 strokes 0,74

2. Test Spe	cifications	checking values in brackets (1400	4000	2000
2.1 Timing device	n = rev/min	1000 1,8-2,6(1,5-2,9)	1400 (3,4-4,8)	1800 5,6-6,4(5,3-6,7)	
2 2 Supply pump	n = rev/min bar (kgf/cm²)	400 1,9-2,5		1800 6,3-6,9	: :
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		55-	2200 138(40-153)
1				2 Dime	peione

3 Fuel delivenes				for assembly
Rot. speed	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgt/cm²)	Designation	and adjustment mm
2700	max. 2,0	0,74	ĸ	3,2-3,4
	(22.0-30.0)		KF	5,7-5,9
2000	42,5-44,5 (41,2-45,8)	0,74	MS	1,4-1,6
		0,74	svs	max.5,3
700	40,0-41,0 /37,5-43,5)	0,2		
600	(32,5-38,5)	U		
2200			^ XK	20,2-22,2
2200			₽XL	9,1-12,4
	2700 2500 2400 2000 1400 1000	2700 max. 2,0 2500 max.17,5 2400 (22,0-30,0) 2000 42,5-44,5 (41,2-45,8) 1400 (48,2-52,8) 1000 45,0-48,0 (43,5-49,5) 700 40,0-41,0 /37,5-43,5) 600 (32,5-38,5)	2700 max. 2,0 0,74	Rot. speed rev/min Fuel delivery cm ³ /1000 strokes Dar (kgr/cm ³)

2.4 Solenoid	max. cut-in vo	mage XXX m	in. 10,0 V age 12V.		
End stop	180 300	min. 40 max. 40			
Idle stop	480 375 350	max.2,0 4,0-8,0	(2,0-10,0) (7,0-15,0)	:	:

Observations

BOSCH

46

WPP 001/4 PEU 2,5 a

1. Edition

VE 4/9 F 2250 R 84 0 460 494 079

Test pressure line 6x2x450 mm / 1 680 750 073

company: Peugect engine: XD 3

DHK: 1 688 901 022/130 bar

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting	mm			See VD1-W-46U/.		
1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³	
,	1500	5,4-5,8	mm			
1.1 Timing device travel	1500	5,5-6,1	bar (kgf/cm²)			
1.2 Supply-pump pressure	1500	37,5-38,5	cm ³ /1000 strokes	•	2,5 (3,0)	
3 Full-load delivery with charge-air pressure Full-load delivery without	-	-	cm ³ /1000 strokes			
charge-air pressure 1 4 Idle regulation	400	6,0-10,0	cm ³ /1000 strokes		2,5 (3,0)	
1.5 Full-speed regulation	2325	23,5-29,5	cm ³ /1000 strakes			
1.6 Start	100	min. 45	cm ³ /1000 strokes			
1 7 Load-dependent port-closing	-	-			•	

2. Test Spe	ecifications	checking values in brackets ()		
2.1 Timing device	n = rev/min mm	700 0,6-1,4(0,3-1,7)	1000 2,5-3,1(2,1-	1500 -3,5)(4,9-6,3)8,1	2000 -8,9(7,8-9,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7		2200 7,5-8,1	
Overflow delivery n = rev/min cm ³ /10 s		400 55-138 (40-153)		2250 55-138 (40-1	53)
0.0.5 a) dalwaraa				3. Dimen	Sions

2.3 Fuel delivenes				J. Dallo	tor assembly and adjustment	
Speed control lever	Rot.speed	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	mm	
End stop	2550	max. 2,0			77. 4	
C.10 310P	2450	4,0-12,0 (4,0-12,0)		ĸ	K 1	
	2325	(22,5-30,5)		KF	5,2-5,4	
	2200	39,6-41,6(38,3-42,9)			-	
	2000	38,9-40,9(37,6-42,2)		MS	0,9-1,2	
	1500	(35,7-40,3)		svs	3, 3 *	
	1000	37,1-39,7(35,4-41,4)				
	600	36,3-39,3(34,8-40,8)				
				A		
switch-off						

idle stop	400		(4,0.12,0)	Observations
	440	max. 2,0		
End stop	350	min. 45	:	:
Ella 3cob	450	max. 45		
	1			

2.4 Solenoid max cut-in voltage XXX min. 10 V

BOSCH

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WPP 001/4 STE 4,0 f

2. Edition

VE 4/11 F 1200 R 94

0 460 414 003

Pre-stroke setting

Overflow temperature 45° C

supersedes Steyr company Steyr engine WD 411.85

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Šettings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
•	1000	4,8-5,2	mm		
1.1 Timing device travel	1000	5,6-6,2	bar (kgf/cm²)		1
1 2 Supply-pump pressure			cm³/1000 strokes		
1.3 Full-load delivery with			CIII-1/1000 2(LOKA2		7 5(4 0)
charge-air pressure	1180	65,5-66,5	cm3/1000 strokes		3,5(4,0)
Full-load delivery without charge-air pressure	300	18,0-22,0	cm ³ /1000 strokes		3,5(4,0)
1.4 Idle regulation	300				
1.5 Full-speed regulation	1300	9,5-15,5	cm ³ /1000 strokes		
1.6 Start	100	min. 80,0	cm ³ /1000 strokes		:
1.7 Load-dependent port-closing	-	-		<u> </u>	

2. Test Spe	cifications	checking values in brackets ()	
2.1 Timing device	n = rev/min	600	1000 (4,3-5,7)	1180 6,3-7,1(6,0-7,4)
2.2 Supply 11 mp	n = rev/min bar (kgf/cm²)	500 3,0-3,6		1180 6,6-7,2
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		1200 55-138(40-153)

2.3 Fuel delivenes	<u> </u>			3. Dimer	ISIONS for assembly and adjustment
Speed control lever	: Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	mm
End stop	1370 1320 1300 1180	max. 1,0 min. 1,5 (8,0-1) (63,4-6)		K KF	3,2-3,4 5,2-5,4
	1000 500	63,0-65,0 (60,6-6) 56,0-59,0 (54,1-6)	7,4)	MS SVS	0,9-1,1 max.3,0
	1200	0		* XK	20,2-22,2
switch-off	1200	•		XIL.	10,3-13,8
Idle stop	410 350 300	max. 1,0 min. 1,5 (15,5-2	4,5)	Observations	
End stop	170 250	min. 80,0 max. 60,0			

2.4 Solenoid

max.cut-in voltage $\chi \chi \chi \chi$ min. 10 V

rated voltage 12V

WPP 001/4 STE 6,5 a

2. Edition

VE 6/11 F 1300 R 98

0 460 416 021

Overflow temperature 45° C

supersedesSteyr company WD 612.01

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/.

1 Settings	Rot. speed	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel 1.2 Supply-pump pressure 1.3 Full-load delivery with charge-air pressure Full-load delivery without charge-air pressure 1.4 Idle regulation 1.5 Full-speed regulation 1.6 Start	1000 1000 1280 300 1450 100	2,4-2,6 6,1-6,7 65,0-66,0 14,0-18,0 18,0-24,0 min. 95,0	mm bar (kgf/cm²) cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes		3,5(4,0) 3,5(4,0)
1.7 Load-dependent port-closing	-	-			

2. Test Spec		checking values in brackets (1000		1280
2.1 Timing device	n = rev/min mm	0,6-1,4(0,3-1,7)	(1,9-3,3)	3,6-4	1,4(3,3-4,7)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	300 3,4-4,0		;	1300 7,2-7,8
Overflow delivery	n = rev/min cm ³ /10 s	55-138(40-153)			1300 (40-153)
2.3 Fuel deliveries				3. Dimer	nsions for assembly
Speed control lever	Rot speed	Fuel delivery cm ³ /1000 strokes	Charge-air press	Designation	and adjustment mm
End stop	1550 1500 1450 1280 1000 500	max. 1,0 min. 1,5 (16,5-25, (62,9-68, 72,0-74,0 (69,6-76, 68,5-72,5 (67,1-73,	1) 4)	k kf ms svs	3,2-3,4 5,4-5,6 1,3-1,5 max.6,0
switch-off	1300	0		A^ KL	8,7-12,
idle stop	430 360 300	max. 1,0 min. 1,5 (11,5-20,	5)	Observations	
End stop	170 250	min. 95,0 max. 73,0			
2.4 Solenoid	max. cut-in volta	1	; ;		

WPP 001/4 IBE 4,0a 2. Edition

supersedes

company:

engine

VE 4/12 F 1300 R 103

Iberica T 4.236

0 460 424 004

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Rre-stroke setting

0.3

see VDT-W-460/

1. Settings	Rot. speed	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1. Settings	rev/min	4,0-4,4	mm	0,8	
1.1 Timing device travel	1000	5,5-6,1	bar (kgf/cm²)	0,8	
1.2 Supply-pump pressure	500	66,0-67,0	cm ³ /1000 strokes		
1.3 Full-load delivery with charge-air pressure	800	94,0-95,0	cm³/1000 strokes	û,8	4,0 (4,5)
Full-load delivery without charge-air pressure	300	6,0-12,0	cm³/1000 strokes	0	3,5 (4,5)
1.4 Idle regulation	1400	64,0-72,0	cm ³ /1000 strokes	0,8	
1.5 Full-speed regulation	100	min. 70,0	cm ³ /1000 strokes	0	
1.6 Start		!			
1.7 Load-dependent port-closing	•	•			

2. Test Spe	cifications	checking values in brackets (1000	1300
21 Timing device DA=U,8 Dar	n = rev/min	0,4-1,2(0,1-1,5)	(3,5-4,9)	5,6-6,4 (5,3-6,7)
2.2 Supply pump _DA=0,8 bar	n = rev/min	500 3,3-3,9		1300 6,7-7,3
Overflow delivery	n = rev/min cm ³ /10 s	500 55-110(40-125)		1300 55-110(40-125)

2.3 Fuel delivenes	<u> </u>			3. Dimera	and adjustment
Speed control lever	Rot. speed	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	i mm
End stop	1640 1580 1400 1300 800 *800	max. 1,0 max. 5,0 (63,0-73,0) 84,5-87,5(83,0-89,0) (91,5-97,5) 91,0-92,0(87,7-95,3) (62,7-70,3)	0,8 0,8 0,8 0,8 0,42	K KF MS SVS	5,1-5,4 1,1-1,35 5,0
	·			χK	20,2-22,2
switch-off		!		PXL	8,6-11,9
Idle stop	430 370 300 110	max. i,0 max. 3,0 (4,0-14,0) min. 70,0		Observations Manifold-pressure compensator stroke = 4,2 mm	
End stop	210	max. 70,0	·		ion at the ng nut. (46)
1	NAME OF THE PARTY NAME OF THE	SOFOR UNITARE LAY			01.9/

BOSCH

Test Specifications Distributor-type Fuel-injection Pumps VE 6/12 F 1100 R 122

46

WPP 001/4 STE 6,5 d

2. Edition

supersedes Stevr

engine:

supersedes Steyr WD 612.87

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/.

Pre-stroke setting mm

0 460 426 029

1. Settings	Rct. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
	800	4,8-5,2	mm		
1.1 Timing device travel 1.2 Supply-pump pressure	800	5,8-6,4	bar (kgf/cm²)		
1.3 Full-load delivery with	•		cm ³ /1000 strokes		9
charge-air pressure	1080	80,8-81,8	cm ³ /1000 strokes	•	3 ,5
Full-load delivery without charge-air pressure	300	14,0-18,0	cm ³ /1000 strokes		3,5
1.4 Idle regulation	1200	11,0-17,0	cm ³ /1000 strokes		
1.5 Full-speed regulation	100	min. 95,0			:
1.6 Start	100	min. 55,0	cm ³ /1000 strokes		
1.7 Load-dependent port-closing					

Overflow temperature 45° C

ifications	checking values in brackets ()		4000
n = rev/min mm	500 1,3-2,1(1,0-2,4)	(4,3-5,7)	1080 6,9-7,7(6,6-8,0)
n = rev/min bar (kgf/cm²)	500 4,3-4,9		1080 7,2-7,8
n = rev/min cm ³ /10 s	500 55-138(40-153)		1100 55-138(40-153
	n = rev/min mm n = rev/min bar (kgf/cm²) n = rev/min	500 1,3-2,1(1,0-2,4) 1,3-2,1(1,0-2,4) 500 4,3-4,9 1 = rev/min 500 500 500 500 500	500 1,3-2,1(1,0-2,4) 1,3-2,1(1,0-2,4) 1,3-2,1(1,0-2,4) 500 4,3-4,9 500 500 500 500 55-138(40-153)

				3. Dimen	sions
2.3 Fuel delivenes Speed control lever		Fuel delivery cm ³ /1000 strokes	Charge-air press	Designation	tor assembly and adjustment mm
End stop	1250 1200 1150 1080 800 500	max.1,0 (9,0-19,0 45,5-54.5 (45,0-55,0) (78,0-84,3) 80,0-82,0 (78,0-84,0) 78,5-81,5 (76,3-83,7)		K KF MS SVS	3,2-3,4 5,7-6,0 1,3-1,5 max.6,0
switch-off	1100	0		A B	
Idle stop	450 350 300 170	max. 1,0 0,5-6,5 (11,0-21,0) min. 100		Observations	
2.4 Solenoid	max. cut-in voltage	max. 75 xxxx min. 10 V rated voltage 12V.			

6

Test Specifications Distributor-type Fuel-injection Pumps

mm

46

10.83

I8S-234

WPP 001/4 REN 2,0 h

2. Edition

company:

engine:

supersedes REN

<u>En</u>

VE 4/9 F 2100 R 130

0 460 494 128

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/

Pre-stroke setting	Rot. speed	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1. Settings	1400	4,0-4,4		0,8	
1.1 Timing device travel	1400	5,1-5,7	mm bar (kgf/cm²)	0,8	
1.2 Supply-pump pressure	1400	46,0-47,0	cm ³ /1000 strokes	0,8	2,5(3,0)
1.3 Full-load delivery with charge-air pressure Full-load delivery without	600	30,3-31,3	cm ³ /1000 strokes	0	2,5(3,0)
charge-air pressure 1.4 Idle regulation	375	4,0-8,0	cm ³ /1000 strokes	0.8	290,097
1.5 Full-speed regulation	2300	18,0-24,0 min. 50,0	cm ³ /1000 strokes	0	
1.6 Start	100	min. 50,0	cm ³ /1900 strokes		
1.7 Load-dependent port-closing	-				;

2. Test Spec	cifications	checking values in t		400	1800	2000
1 Timing device DA=0,8 bar	n = rev/min	1,9-2,7(1,6		5-4,9) 5,8-6	,6(5,5-6,9) 1800	6,1-6,9(5,8-
2.2 Supply pump DA=0,8 bar	n = rev/min bar (kgf/cm²)	400 1,9-2,5			6,3-6,9	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-	-153)		2100 55-138(40-1	53)
2.3 Fuel delivenes				Charge-air press	3. Dimen	sions for assembly and adjustment mm
Speed control lever	Rot. speed rev/min	Fuel delivery cin3/1000 strokes		bar (kgt/cm²)		
End stop	2600 2400 2300 2000 1400 1000 700 * 600	nax. 2,0 nax. 14,0 38,0-41,0 41,5-44,5 35,3-36,3	(17,0-25,0) (37,2-41,8) (44,2-48,8) (40,0-46,0) (32,8-38,8) (27,8-33,8)	0,8 0,8 0,8 0,8 0,8 0,2 0	K KF MS SVS	3,2-3,4 5,7-6,0 1,4-1,6 5,5
switch-off eléctr.	400	0			A XK	20,2-22,2
Idle stop	350 375	9,0-13,0	(7,0-15,0) (2,0-10,0)		Observations Man i fol	d-pressure
End stop	480 170 300	max. 2,0 min. 40 max. 40			*compens = 4,5 m Correct	sator stroke
2.4 Solenoid	max. cut-in volta	ge xxx min rated volta	. 10 V ge 12V.			
		_				n2 84

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Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 62.84 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d Allemagne par Robert Bosch GmbH.

46

WPP 001/4 MAN 5,6 g

1. Edition

E

VE 6/12 F 1400 R 132 0 460 426 032 supersed AAN company D 0226 MK 141 kW engine

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting

0,2

_ + 0,02 mm

see VDT-W-460/

1. Settings	Rot. speed	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm ³
1. 08(11.90	800	3,1-3,5	mm	1,0	
1.1 Timing device travel	800	5,2-5,8		1,0	
1.2 Supply-pump pressure	1000	119,0-120,0	bar (kgf/cm²)	1,0	4,0(4,5)
1.3 Full-load delivery with charge-air pressure	630	81,0-82,0	cm ³ /1000 strokes	· •	
Full-load delivery without charge-air pressure	300	10,0-16,0	cm ³ /1000 strokes	:	3,5(4.5)
1.4 Idle regulation	1440	104,0-112,0	cm ³ /1000 strokes	1,0	į
1.5 Full-speed regulation	100	min. 75,0	cm ³ /1000 strokes	1	•
1.6 Start	800			1,0	!
1.7 Load-dependent port-closing		1		<u></u>	<u> </u>

2. Test Spe	cifications	checking values in brackets (
2.1 Timing device	n = rev/min	500 1,5-2,3(1,2-2,6)	800 (2,6-4,0)	1100 4,2-5,0(3,9-5,3)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	200 2,3-2,9		1400 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s			1400 55-138(40-153)

2.3 Fuel deliveries			; :	3. Dimens	for assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm²)	Designation	mm
End stop	1620 1550 1440 1400 1000 800 630 *630	115,5-118,5 (1 (1 121,0-125,0 (1 118,0-122,0 (1	03,0-113,0) 1,0 14,0-120,0) 1,0 16,5-122,5) 1,0 19,2-126,8) 1,0 16,2-123,8) 1,0 8,2-115,8 0,4	K KF MS SVS	- 5,7-6,0 1,0-1,25 2,7
switch-off	630	81,0-82,0 (7	7,7-85,37 0	A	*.
Id ie stop	400	max. 2,0		Observations	1

2.4 Solenoid	max. cut-in volta	ge xxx min. 10 V crated voltage 12V.	
End stop	320 430	min.90,0 max. 90,0	
Id ie stop	400 350 300	max. 2,0 max. 5,0 (8,0-18,0)	1

*Manifold-pressure compensator stroke = 7,5 mm Correction at the adjusting nut. (46)

BOSCH

6

Test Specifications
Distribu r-type
Fuel-injection Pumps

VE 4/9 F 2250 R 134-1

0 460 494 134

46

WPP 001/4 VWW 1,6 V 5

2. Edition

<u>En</u>

supersedes 7.83 company VWW engine 086 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting -	mm			see VDT-W-460/	
1. Settings	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1500	3,3-3,7	mm	0,75	
1 2 Supply pump pressure	1500	4,6-5,2	bar (kgf/cm/)	0,75	
1.3 Full-load delivery without	600	22,5-23,5	cm ³ /1000 strakes	0	
charge-air pressure Full-load delivery :hith	1500	42,5-43,5	cm ³ /1000 strokes	0,75	2,5 (3,0)
charge-air pressure 1 4 Idle speed regulation	450	6,0-10,0	cm ³ /1000 strokes	0	2,0 (3,0)
1 5 Start	100	min. 35,0	cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	2525	9,0-15,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery	_	:			

2. Test Spec	ifications	checking values in brackets ()	
	n = rev/min	1000 1,3-2,1(1,0-2,4)	1500 (2,8-4,2)	2250 6,0-6,8(5,7-7,1)
2.2 Supply pump LDA=0,75 bar	n = rev/min	600 2,5-3,1		2250 6,5-7,1
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		2250 (0,75 bar) 55-138(40-153)

	<u> </u>				3. Dimer	scione
2.3 Fuel delivenes					3. Diffe	for assembly and adjustment
Speed control lever	Rot speed	Fuel delivery cm3/1000 strokes		Charge-air press bar (kgf/cm²)	Designation	mm
End stop	2750 2525	max. 3,0	(8,0-16,0) (36,8-41,2)	0,75 0,75 0,75	K	3,2-3,4 5,7-6,0
	2250 1500 1000 * 600		(40,8-45,2) (30,8-35,2) (20,0-26,0)	0,75 0,3 0	MS SVS	1,2-1,4
	:					
switch-off mech. elektr.	2250 400	0 0			А , В	٠.
idle stop	450 1200	max. 9,0	(4,0-12,0)		Observations * Manifold-pressure compensator stroke	
End stop	400 500	min. 21,0 max. 29,0			= 4,0 Correct	
2.4 Solengid	max.cut-in volt	age XXX min.	10.0 V		!	

INSTRUMENTAL rated voltage 12V.

WPP 001/4 VWW 1,6 V 6 2. Edition

VE 4/9 F 2250 R 134-2 0460 494 135

supersedes 7.83 company VWW 086 T

--- VOT W 4601

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting	mm			see VDT-W-460/		
1. Settings	Rot speed rev/min	Settings		Charge-air press. bas (kgt/cm²)	Difference in deliwery cm ³	
1.1 Timing device travel	1500	3,3 - 3,7	mm	0,75 bar		
1.2 Supply pump pressure	1500	4,6-5,2	bar (kgf/cm²)	0,75		
1.3 Full-load delivery without	600	22,5-23,5	cm ³ /1000 strokes	0		
charge-air pressure Full-load delivery with	1500	42,5-43,5	cm ³ /1000 strokes	0,75	2,5 (3,0)	
charge-air pressure 1 4 idle speed regulation	475	6,0-10,0	cm ³ /1000 strokes	0	2,0 (3,0)	
1 5 Start	100	min. 35,0	cm ³ /1000 strokes	0		
1.6 Full-load speed regulation	2525	9,0-15,0	cm ³ /1000 strakes	0,75		
1.7 Load-dependent start of delivery	-			•		
		t				

2. Test Spe	cifications	checking values in brackets ()	
2.1 Timing device	n = rev/min	1000	1500	2250
LDA = 0,75b		2,3-2,1(1,0-2,4)	(2,8-4,2)	6,0-6,8 (5,7-7,1)
22 Supply pump	n = rev/min	600		2250
LDA = 0,75b	(a_Tbar (kgf/cm²)	2,5-3,1		6,5-7,1
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)		2250 (0,75 bar) 55-138 (40-153)

2.3 Fuel delivenes			3. Dimensions			
Speed control lever	Rot speed	Fuel delivery cm3/1000 strokes		Charge-air press bar (kgt/cm²)	Designation	and adjustment
End stop	2750 2525	max. 3,0	(8,0-16,0)		ĸ	3,2-3,4
	2250 1500	38,0-40,0	(36,8-41,2)		KF	5,7-6,0
*	1000	32,5-33,5	(40,8-45,2) (30,8-35,2)		MS	1,2-1,4
	600		(20,0-26,0)		svs	3,2
					÷	
switch-off					A	•
elektr.	400	0			8	· ·
Idle stop	475 1200	max. 4,0	(4,0-12,0)		Observations	••.
	400	min. 21,0			*Manifol	d-pressure
End stop	500	max. 29,0			= 4,0	ator stroke mm ion at the
2.4 Solenoid	max cut-in volta	xxxx min.	10,0 V			ng nut. (46)
2.4 00.01.010	XXXXXXXXXXXXX	x rated volta	ge 12V.			

5,7-6,0 1,2-1,4 MS 3,2 SVS servations Manifold-pressure compensator stroke = 4,0 mm Correction at the

12.83

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VE 4/9 F 2250 R 134-4

0 460 494 137

46

WPP 001/4 VWW 1,6 W 6

2. Edition

<u>En</u>

supersedes 10.83 company VWW engine: 086 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting	mm			see VDT-W-460/	
1. Settings	Rot speed revimin	Settings		Charge-air press bar (kyl/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,2-3,7	mm	0,75	
1.2 Supply pump pressure	1500	4,6-5,2	bar (kgt/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	22,5-23,5	cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	42,5-43,5	cm ³ /1000 strokes	0,75	2,5 (3,0)
1 4 idle speed regulation	475	6,0-10,0	cm ³ /1000 strokes	0	2,0 (3,0)
1 5 Start	100	min. 35	cm=/1000 strokes	0	
1 6 Full-load speed regulation	2525	9,0-15,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery	_				

2. Test Spec	cifications	checking values in brackets ()	
2 1 Timing device	n = rev/min	1000	1500	2250
LDA=0,75 bar		1,3-2,1(1,0-2,4)	(2,8-4,2)	6,0 - 6,8(5,7-7,1)
22Supplypump	n = rev/min	600		2250
LDA=0,75 bar	bar (kgt/cm²)	2,5-3,1		6,5-7,1
Cverflow delivery	n = rev/min cm ³ /10 s	600 (0 bar) 55-138 (40-153)		2250 (0,75 bar) 55-138(40-153)

2.3 Fuel deliveries		3. Dimensions. for assembly				
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	2750 2525	max. 3,0	(8,0-16,0)	0,75 0,75	к	3,2-3,4
	2250	38,0-40,0	(36,7-41,3)	0,75	KF	5,7-6,0
	1500 1000 *	32,5-33,5	(40,7-45,3) (30,7-35,3)	0,75 0,30	MS	1,2-1,4
	600	,.	(20,0-26,0)	0	SV S	3,2

500	IIIdX. 23	Ì		
400	min. 21 max. 29		•	Please note instructions on sheet 2
4/5 1200 1125 **	max. 4,0 22,0-24,0	(4,0-12,0)		Observations
400	0			A B
	4/5 1200 1125 **	4/5 1200 max. 4,0 1125 ** 22,0-24,0 400 min. 21	4/5 (4,0-12,0) 1200 max. 4,0 1125 ** 22,0-24,0 400 min. 21	4/5 (4,0-12,0) 1200 max. 4,0 1125 ** 22,0-24,0 400 min. 21

- * Manifold-pressure compensator stroke = 4,0
- ** Setting point for EGR

Pull control lever toward full load untill gauge fits over driver and housing cover web. Measure delivery.

WPP 001/4 VWW 1,6 V 9 2. Edition

VE 4/9 F 2400 R 138 0 460 494 131

Overflow temperature 45° C

supersedes 7.83 company VWW engine. 086

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

12.83

see VDT-W-460/.

Pre-stroke setting	mm 			see VD1-VV-460/	
1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,9 - 3,3	mm	!	
1.2 Supply pump pressure	1500	4,3 - 4,9	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure Full-load delivery without	1500	33,0-34,0	cm ³ /1000 strokes		2,5 (3,0)
charge air pressure 1.4 Idle regulation	475	6,0-10,0	cm³/1000 strokes		2,0 (3,0)
1.5 Full-speed regulation	100	min- 35,0	cm ³ /1000 strokes		
1 6 Start	2600	11,0-17,0	cm ³ /1000 strokes		
1.7 Load-dependent port-closing		į			
				<u> </u>	

2. Test Spe	ecifications	checking values in brackets ()	
2 1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,4-2,8)	2400 6,1-6,9(5,8-7,2)
2 2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,2-2,8		2400 6,4-7,0
Overflow delivery n = rev/min cm³/10 s		600 55-138 (40-153)	2400 55-138 (40-153)	
		1		2 Dimensions

2 3 Fuel deliveries				3. Dimer	for assembly
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	and adjustment
End stop 🦸	2800 2600 2400 1500 600	max. 3,0 (10,0-18,0) 27,5-29,5(26,3-30,7) (31,3-35,7) 21,5-24,5(20,0-26,0)		k kf ms svs * FH	3,2-3,4 5,7-6,0 1,3-1,5 2,7 1,8-2,4
switch-off electr.	400	0		A B	
Idle stop End stop	475 650 1200 400 500	(4,0-12,0) max. 6,0 max. 5,0 min.18,0 max.23,5			ng stroke tart accel.)
2.4 Solenoid	cut-in voltage min 10,0 V rated voltage 12V				

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6

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 W 2

2. Edition

supersedes 7/83 company VWW engin**e** 086

see VDT-W-460/

VE 4/9 F 2400 R 138-1 0 460 494 140

Overflow temperature 45° C

All to a specifications are valid only for Bosch Fuel-injectio	on Pump Test Benches and Tester	S
Auto-a consistentions are valid only for Bosch Fuel-injection	on Pump Test Benches and Tester	S

Test Instructions and Test Equipment

Pre-stroke setting	mm	·			
1. Settings	Rot speed rev/min	Settings		Charge-air press bar (kgt/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,9-3,3	mm		
1.2 Supply pump pressure	1500	4,3 - 4,9	bar (kgf/cm²)		
1 3 Full-load delivery without	1500	33,0-34,0	cm ³ /1000 strokes		2,5 (3,0)
charge-air pressure Full-load delivery with	÷	-	cm ³ /1000 strokes		
charge-air pressure 1 4 Idle speed regulation	450	6,0-10,0	cm ³ /1000 strokes		2,0 (3,0)
1 5 Start	100	min. 35,0	cm²/1000 strokes		
1.6 Full-load speed regulation	2600	11,0-17,0	cm ³ /1000 strokes		
; 17 Load-dependent start of deliver	y				į

2. Test Spe	ecifications	checking values in brackets ()		
2.1 Timing device	n = rev/min	1000 1,3-2,1 (1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9 (5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgt/cm²)	600 2,2 - 2,8		2400 6,4-7,0
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)		2400 55-138 (40-153)
		and an area with the same of the section of the sec		3. Dimensions

2.3 Fuel duliveries				o. Dirich	tor assembly and adjustment
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm²)	Designation	mm
	2800	max. 3,0 (10,0-18,0)		ĸ	3,2-3,4
	2600 2400	27,5-29,5 (26,3-30,7(KF	5,7-6,0
1	1500	(31,3-35,7) 21,5-24,5 (20,0-26,0)		MS	1,3-1,5
1	600	21,5-24,5 (20,0-20,0)		svs	2,7
				*FH	1,8-2,4

switch-off mech. elektr.	2400 400	0		A B	
End Stop	450 650 1200 400 500	max. 5,0 max. 7,0 min. 18,0 max. 23,5	(4,0-12,0)	Observations *operating stroke (KSB)	
2.4 Solenoid	max. cut-in vol	tage XXXX min. rated volta	10 V ige 12V.		

2. Test Specifications checking values in brackets (

400

0,8-1,6 (0,5-1,9)

WPP 001/4 IHC 3,9 y
1. Edition

<u>En</u>

VE 4/11 F 1150 R 140 C 460 414 009

2.1 Timing device n = r LDA = 0,8 bar mm Nozzle-and-holder assembly company IHC 1 688 901 020 (172 + 3 bar) engine DT 239/856

800

(4,0-5,4)

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

1150

5,3-6,1 (5,0-6,4

(つつマママ	2 +	
		ことの	

Pre-stroke setting 0,2		mm			see VD1-W-460/.		
1. Settings		Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm ³	
1 1 Timing device trav		800	4,5-4,9	mm	0,8 bar		
1.2 Supply-pump pres		800	5,3-5,9	bar (kgt/cm²)	0,8 bar		
1.2 Supply-pump pres		500	76,5-7 7 ,5	cm ³ /1000 strokes	0	:	; }
charge-air pressur	e	800	95,5-96,5	cm ³ /1000 strokes	0,8 bar	3,5 (4,0)	
charge-air pressur		350	28,0-32,0	cm ³ /1000 strokes	0	3,5 (4,0)	
1.5 Full-speed regulat	tion	1250	27,0-33,0	cm ³ /1000 strokes	0		
1.6 Start		100	min. 100	cm³/1000 strokes	0,8 bar		i i
1.7 Load-dependent	port-closing		_				:

	i							
22 Supply pump LDA = 0,8 bar	n = rev/min bar (kgf/cm²)	400 3,7-4,3		6	1150 ,4-7,0			
Overflow delivery	n = rev/min cm ³ /10 s	n = rev/min 500			1150 (0,8 bar) 55-138 (40-153)			
2.3 Fuel deliveries Speed control lever	Rot speed	Fuel delivery		Charge-air press	3. Dimen	SiOf18 for assembly and adjustment mm		
End stop	1300 1250 1130 800 750 * 500		(25,5-34,5) (86,9-92,1) (93,4-98,6) (85,6-92,4) (73,6-80,4)	0.8 bar	K KF MIS SVS	5,2-5,4 1,2-1,4 5,0		
switch-of:					a XK	20,2-22,2		
Idle stop End step	350 400 450 220 300	10,0-16,0 max. 3,0 min. 100 max. 80	(25,5-34,5) (8,5-17,5)		compensa = 4,9 mm Correcti	-pressure tor stroke on at the g nut. (46)		

2.4 Solenoid

xxxx min. 10 V

rated voltage 12V.

Festoil 450 4113

WPP 001/4 FIA 1,9 e

1. Edition

0 460 494 132

DHK: 1 688 901 022/130 bar

Test pressure line 6x2x450 mm / 1 680 750 073

superseder iat company X 8/43 engine:

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

2 Dimensions

	•		see VDT-W-460
-stroke setting		mm –	
• • • • • • •			

Pre-stroke setting mm				see VD1-W-460/	
1. Settings	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm ³
	1500	4,3-4,7	mm		•
1.1 Timing device travel	1500	5,6.6,2	bar (kgf/cm²)	į	•
1 2 Supply-pump pressure	1500	31,0-32,0	cm ³ /1000 strokes		2,5(3,0)
1.3 Full-load delivery with charge-air pressure	-	-	cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	350	9,0-13,0	cm³/1000 strokes	!	2,5(3,0)
1.4 Idle regulation	2500	11,0-17,0	cm ³ /1000 strakes		
1.5 Full-speed regulation	100	min. 55,0	cm ³ /1000 strokes	1	
1 6 Start	100		CHI-71000 SHOKES	1	
1.7 Load-dependent port-closing	· -	:			

2. Test Spe	cifications	checking values in brackets ()	2200	
2.1 Timing device	n = rev/min	800	1500 (3,8-5,2)	2300 7,1-7,9(6,8-8,2)	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,8-3,4		2300 7,4-8,0	
Overflow delivery	n = rev/min cm ³ /10 s	400 55-138(40-153)		2300 55-138(40-153)	

2.3 Fuel delivenes					tor assembly
Spaed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	2600 2500	6,2-6,8 (6,1-6,9) (10,0-18,0)		к	3,1-3,4
	2400	21,0-27,0(20,0-28,0)		KF	5 , 7 - 5 , 9
	2250 1500	32,7-34,7(31,4-36,0) (29,2-33,8)		MS	1,7-1,9
	1000 1000 600	30,7-33,3(29,0-35,0) 32,0-35,0(30,5-36,5)		svs	2,8
			an an an an an an an an an an an an an a	ХК	20,2-22,3
switch-off				χ̈́L	10,3-13,

Idle stop	350 400	(7,0-15,0) max. 4,0	Observations	
End stop	540 300 400	0 min. 45,0 max. 46,0		

xxx min. 10 V max. cut-in voltage 2.4 Solenoid rated voltage 12V.

46

WPP 001/4 REN 2,0 k

1. Edition

VE 4/9 F 2200 R 153 0 460 494 141

Pre-stroke setting

supersedes company engine J8S=709

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/.

1. Settings	Rot. speed	Settings		Charge-air press. bar (kgt/cm²)	Difference in delivery cm ³
,	1400	3,9-4,3	mm	8,0	
1.1 Timing device travel	1400	5,1-5,7	bar (kgf/cm²)	0,8	i :
1.2 Supply-pump pressure	1400	50,0-51,0	cm ³ /1000 strokes	0,8	2,5 (3,0)
1 3 Full-load delivery with charge-air pressure	600	35,0-36,0	cm³/1000 strokes	0	:
Full-load delivery without charge-air pressure	350	9,0-13,0	cm ³ /1000 strokes	0	2,5 (3,0)
1.4 Idle regulation	2400	23,0-29,0	cm ³ /1000 strokes	0,8	İ
1.5 Full-speed regulation	100	min. 60,0	cm³/1000 strokes	0	
1 6 Start					
1.7 Load-dependent port-closing	; -				

2. Test Spe	cifications	checking values in brackets ()		
2.1 Timing device	n = rev/min mm	1000 1,8-2,6(1,5-2,9)	1400 (3,4-4,8)	1800 5,6-6,4(5,3-6,7)	2000 6,2-7,0(5,9-7,3
2.2 Supply pump	n = rev/min ber (kgf/cm²)	400 1,9-2,5		1800 6,3-6,9	
Overflow delivery	n = rev/min cm ³ /10 s	300 55-138(40-153)		2200 55-138(40-153)	
2.3 Fuel deliveries		1		3. Dim	678i078 for assembly and adjustment

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2700 2500 2400 2000 1400 1000 *700 600	max. 2,0 max. 17,5 (22,0-30,0) 42,5-44,5 (41,2-45,8) (48,2-52,8) 45,0-48,0 (43,5-49,5) 40,0-41,0 (37,5-43,5) (32,5-38,5)	0,8 0,8 0,8 0,8 0,8 0,8 0,2
switch-off	2200	0	i
Icla stop	480 375 350	max. 2,0 4,0-8,0 (2,0-10,0) (7,0-15,0)	
End stop	180 300	min. 40,0 max. 40,0	·
2.4 Solenoid	max. cut-in vol	tage	

Observations

Designation

κ

KF

MS

SVS

*Manifold-pressure compensator stroke = 4,5 mm Correction at the adjusting nut. (46)

BOSCH

3,2-3,4

5,7-6,0

1,4-1,6

46

WPP 001/4 REN 2,0 k 1

1. Edition

<u>En</u>

VE 4/9 F 2200 R 153-1 0460 494 156

Dra-etroka satting

supersedes Renault company: J8S-T 01

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot speed	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
;	1400	3,9 - 4,3	mm	0,8	
1.1 Timing device travel	1400	5,1 - 5,7	bar (kgt/cm²)	0,8	
1.2 Supply-pump pressure	1400	50,0 - 51,0	cm³/1000 strakes	0,8	2,5 (3,0)
1.3 Full-load delivery with charge-air pressure	600	35,0 - 36,0	cm ³ /1000 strokes	0	
Full-load delivery without charge-air pressure 1.4 Idle regulation	350	9,0 - 13,0	cm ³ /1000 strokes	0	2,5 (3,0)
1.5 Full-speed regulation	2400	23,0 - 29,0	cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 60,0	cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing					

2. Test Spe	cifications	checking values in brackets ()		
2.1 Timing device	n = rev/min	1000 1,8-2,6 (1,5-2,9)	1400 (3,4-4,8)	1800 5,6-6,4 (5,3-6,7)	2000 6,2-7,0(5,9-7,
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 1,9 - 2,5		1800 6,3 - 6,	9
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2200 55-138 (40-1	53)
2.3 Fuel deliveries	l Rot. speed	Fuel delivery		3. Dime	nsions tor assembly and adjustment mm

2.2 Evel deliveres			
2.3 Fuel deliveries Speed control lever	Rot. speed	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm²)
End stop	2700 2500 2400 2000 1400 1000 *700 600	max. 2,0 max. 17,5 (22,0-30,0) 42,5-44,5 (41,2-45,8) (48,2-52,8) 45,0-48,0 (43,5-49,5) 40,0-41,0 (37,5-43,5) (32,5-38,5)	0,8 0,8 0,8 0,8 0,8 0,8 0,2
switch-off	2200	0	
idle stop	480 375 350	max. 2.0 4,0-8,0 (2,0-10,0) (7,0-15,0)	
End stop	180 300	min. 40,0 max. 40,0	
2.4 Solenoid	max. cut-in vol	tage xx min. 10 V	

•	3,2 - 3,4
KF	5,7-6,0
MS	1,4-1,6
svs	3,6
. A	
: B	
	· · · ·
Observations	
compensa = 4,5 mm	
,	on at the
adjustin	g n u t. (46)

BOSCH

WPP 001/4 FIA 1,9 d

1. Edition

VE 4/9 F 2300 L 157

Test pressure line 6x2x450 mm / 1 680 750 073

supersedes company: engine:

Fiat X8/48

0 460 494 144 DHK: 1 688 901 022/130 bar

Pre-stroke setting

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers mm

Test Instructions and Test Equipment

see VDT-W-460/...

Te-Stroke Setting	Rot speed	Settings		Charge-air press.	Difference in delivery cm ³
1. Settings	LBALWIU		bar (kgf/cm²)	bar (kgi/Cii/-)	- Gentury Giri
	1500	4,3-4,7	mm	· •	i
1.1 Timing device travel	1500	5,6-6,2	bar (kgf/cm²)		} }
1.2 Supply-pump pressure	1500	31,0-32,0	cm ³ /1000 strokes		2,5 (3,0)
1 3 Full-load delivery with charge-air pressure	_	-	cm³/1000 strokes	1	
Full-load delivery without charge-air pressure	350	9,0-13,0	cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	2500	11,0-17,0	cm ³ /1000 strokes	•	•
1.5 Full-speed regulation			cm ³ /1000 strokes		i i
1 6 Start	100	min. 55,0	CIII-/ IOOO SITORAS	:	
1.7 Load-dependent port-closing	-	-		:	<u></u>

2. Test Spe	cifications	checking values in brackets ()			
2.1 Timing device		800	1500 (3,8-5,2)	2000 5,8-6,4(5,4-6,6	2300 8) 6,7-7,5(6,4-7,8)	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,9-3,5		2300 7,4-8,0		
Overflow delivery n = rev/min cm ³ /10 s		400 55-138(40-153)		23 55-138	00 (40-153)	
				3, Di	mensions	

2.3 Fuel delivenes					for assembly and adjustment
Speed control lever	- Rot. speed Fre⊎/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm²)	Designation	mm
End stop	2600 2500	0,5-6,5		К	3,1-3,4
	2400	21,0-27,0(20,0-28,0)		KF	5,7-6,0
	2250 1500	33,4-35,4(32,1-36,7) (29,2-33,8)		MS	1,4-1,65
	1000 600	30,7-33,3(29,0-35,0) 31,5-34,5(30,0-36,0)		svs	2,8

switch-off

Idle stop	350	7,0-15,0)	Observation
idio stop	400	0,5-6,5	
: •	450	max. 1,5	
i End stop	300	min. 45,0	:
End stop	400	max. 46,0	
!			
			
2.4 Solenoid	max. cut-in voltage	xxx min. 10 V	

lest voltage 12V

46

WPP 001/4 REN 2,0f

1. Edition

VE 4/9 F 2250 R 158

0 460 494 145

Overflow temperature 45° C

company Renault engine J85-706

see VDT-W-460/

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Fre-stroke setting	mm			288 AD1-14 - 4001 .	
1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgt/cm²)	Difference in delivery cm ³
	1400	4,4-4,8	mm		i
1.1 Timing device travel	1400	4,9-5,5	bar (kgf/cm²)	•	1
1 2 Supply-pump pressure	1400	39,0-40,0	cm ³ /1000 strokes	:	2,5 (3,0)
1.3 Full-load delivery with charge-air pressure	•	-	cm³/1000 strokes	•	
Full-load delivery without charge-air pressure	400	7,5-11,5	cm ³ /1000 strokes		2,5(3,0)
1.4 lole regulation	2400	17,0-23,0	cm³/1000 strokes	:	!
1 5 Full-speed regulation 1 6 Start	100	min. 52,0	cm ³ /1000 strokes	• •	:
1.7 Load-dependent port-closing	-	•		•	

2. Test Spe	cifications)	2000
2.1 Timing device	n = rev/min	1000 2,6-3,4(2,3-3,7)	1400 (3,9-5,3)	6,7-7,5 (6,4-7,8)
2 2 Supply pump	n = rev/min bar (kgf/cm²)	1000 3,9-4,5		2000 6,5-7,1
Overflow delivery	r: = rev/min	500 55-138 (40-153)		2250 55-138 (40-153)

2.3 Fuel deliveries		3. Dimensions tor assemble and adjusting the state of the			
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgt/cm²)	Designation	mm
End stop	2250	max. 2,0 (16,0-24,0)		к	3,2-3,4
	2400 2200	31,5-33,5(30,2-34,8)		KF	5,7-5,9
	2100	32,5-34,5(31,2-35,8)		MS	1,4-1,6
	1400 1000	(37,2-41,8) 35,5-38,5(34,0-40,0)		svs	max.3,6

switch-off	2250	0	ጎ አκ ⁸ አ∟
idle stop	650 40ປ	max. 5,0 (5,5-13,5)	Observations
End stop	320 430	min. 45,0 max. 45,0	
2.4 Soleroid	max cut+n vo	trage vy min 10 V	

BOSCH

6

Test Specifications Distributor-type Fuel-injection Pumps 46

WPP 001/4 VWW 1,6 e

1. Edition

En

VE 4/9 F 2000 R 160

0 460 494 149

supersedes company VWW engine 068.5 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting	mm			see VDT-W-460/		_
1. Settings	Rot speed	Settings		Charge-air press bar (kg1/cm²)	Difference in delivery cm ³	
	1500	3,2-3,6	mm	0,75		
1.1 Timing device travel	1500	5,5-6,1	bar (kgf/cm²)	0,75		
1 2 Supply-pump pressure	600	24,5-25,5	cm³/1000 strokes	0		
1.3 Full-load delivery with charge-air pressure	1500	41,5-42,5	cm ³ /1000 strokes	0,75	2,5 (3,0)	;
Full-load delivery without charge-air pressure 1.4 Idle regulation	475	6,0-10,0	cm ³ /1000 strokes	0	2,0 (3,0)	
1 5 Full-speed regulation	2110	9,0-15,0	cm ³ /1000 strokes	0,75		
1 6 Start	100	min. 35,0	cm ³ /1000 strokes	0		
1.7 Load-dependent port-closing	-					

2. Test Spec	ifications	checking values in brackets ()	
2.1 Timing device LDA=0,75bar	n = rev/min	1000 1,2-2,0 (0,9-2,3)	1500 (2,7-4,1)	1980 5,2-6,0 (4,9-6,3)
2.2 Supply pump LDA=0,75bar	n = rev/min bar (kgf/cm²)	600 3,4-4,0		1980 6,6-7,2
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)	5	1980 (0,75 bar) 5-138 (40-153)
				3. Dimensions

2 3 Fuel delivenes			O. Diiiio.	tor assembly and adjustment
Rot speed rev/min	Fuel delivery cm3/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	: mm
2150	max. 4,0	0,75		
2110	(8,0-16,0)	0,75	ĸ	3 ,2- 3,4
1980	39,0-41,0 (37,7-42,3)	0,75	KF	5 , 65 - 5,95
		0,73	MS	1,2-1,4
600	24,5-25,5 (22,0-28,0)	0	svs	5,7
	2150 2110 1980 1500 1000	2150 max. 4,0 2110 (8,0-16,0) 1980 39,0-41,0 (37,7-42,3) 1500 (39,7-44,3) 1000 33,5-34,5 (31,0-37,0)	2150 max. 4,0 0,75	Rot speed rev/min cm ³ /1000 strokes bar (kgf/cm ³) 2150 max. 4,0 0,75 2110 (8,0-16,0) 0,75 K 1980 39,0-41,0 (37,7-42,3) 0,75 KF 1500 (39,7-44,3) 0,75 1000 33,5-34,5 (31,0-37,0) 0,3 MS

switch-off				A
elektr.	400	0	· ·	В
Idle stop	475		(4,0-12,0)	Observations
End stop	600 350 450	max. 3,0 min. 32,0 max. 38,0		After each LDA pressure change operate control lever.
!				·
2.4 Solenoid	max.cut-in vo	mage XXXX min.	, 10 V	į

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch. GmbH. Postfach 50. D-7000 Stuttgarf 1. Printed in the Federal Republic of Germany. 1980 by Robert Bosch. GmbH. 1980 569-519 4. Allemanne par Robert Bosch. GmbH.

rated voltage 12V.

Fuel Injection Pumps and Governors

WPP 001/4 HAN 10,8 e

Edition

supersed 79

En

PE 6 A 95 D 320 RS2364 RS2364 RS2557 EP/RSV 350-1100 A8 B1104DR (1) 350-1100 A8 B1103DR (2) 350-1100 A8 B1116DR (3) ASC 1116 R (3)

companyMIT-Hanomag engine D 562 (1) D 963 (2) D 963 (3)

(1)

1104DR

** Cold-start test according to VDT-I-420/114 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fue! Injection Pump Settings 2 15-2 25

Rotational speed	Control rod travel	10-2-30) Fuel delivery (2 - 3)	Difference cm ³ /	Control rod travel	Fuel delivery (1)	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
1100	10,8	10,5 - 10,7	0,3(0,6	10,0	9,0-9,3	
350 700/500	+0,1 5,9-6,1 	0,9- 1,4 C, 4-5	0,3(0,5	+0,1	1,4 - 2,0	

Adjust the fuel delivery from each outlet according to the values in

R Governor Settings

	rated spee	Control rod travel mm	Intermediate Degree of deflection of control lever	rev/min	Control rod travel	Lowe Degree of deflection of control lever	rev/min	Contro! rod travel mm	3 Tor	que controi Control rod travei mm
loose	800 x =	0,3-1,0		- 		ca.25	350 100	5,5 min. 19	1100 10,7- 500	10,8
ca.56	9,0 4,0 1370	1140-115 1170-120 0,3 - 1,					350 490- 650	5,9-6,1 550 =2,0 0 - 1	İ	11,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop			Starting Idle	fuel delivery	Sa Idle stop		
rest oil temp. 40°C (104°F) ev/min cm ³ /1000 strokes		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³¹¹ 000 strokes 7	rev/min	Control rod travel mm
(1) 1100	89,0 - 91,0 (87,0 - 93,0)	1140-1150*	700	93,0 - 96,0 (91,0 - 98,0)	1	20,0-20,5 mm RW **		
			500	83,5 - 86,5 (81,5 - 88,5)				./.

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

1103DR u. 1116DR (2-3)

Degree of deflection of control lever	Control rod travel mm		Intens	nediate ra	ted speed	Control- lever deflection in degrees 7	rev/min	r rated speed Control rod travel mm 9	rev/min	rque control Control rod travel mm 11
loose	800 x =	0,3-1,0 5,5				ca.25	350 100	5,5 min. 19	1100 10,8- 975	10,9
ca. 56	4,0	1140-1150 1180-1210 0,3 - 1,7					350 490-55 650	5,9-6,1 0 = 2,0 0 - 1	500	11,6

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	il-load stop	6 Rotational- speed limitat.	3a Fu	el delivery aracteristics	Starting fuel delivery 5 4a idle stor			e stop
rev/min	emp. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to) rev/min 3	rev/min	• cm ² /1000 strokes 5	revimin	cm+/1000 strakes 7	rev/min 8	travei mm
(2-3) 1100	103,5 - 105,5 (101,5 - 107,5)		700 500	109,5 - 112,5 (107,5 - 114,5) 105,0 - 107,0 (103,0 - 109,0)				

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

B. Governor Settings

Degree of deflection of control sever	deflection of control mm mm rev/min		Intern			Control- lever deflection in degrees 7	Control- lever deflection rev/min in degrees		rated speed Control rod travel mm rev/min 9 10	
29										

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp. 40°C (104°F)	Note:	Note: characteristics			uel delivery 5	Idle stop Control ro		
rev/mmn	cm ³ /1000 strokes	changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9	
				•					

Checking values in brackets En

* 1 mm less control rod travel than col. 2

WPP 001/4 HAN 10,8 h

Edition

En

PE 6 A 95 D 320 RS2557

EP/RSV 350-1100 A8B1117DR

supersedes 10.81

sompany MF-Hanomag

A8C 1117 R

endine

D 962

Komb.-Nr. 0 400 676 157

** Cold-start test according to VDT-I-420/114

All test specifications are valid for Bosch Fuel injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

(2 10-2 30)

mm (from BDC)

Rotational speed revimin	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delive: v cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1100	10,0+0,	9,1-9,3	0,3(0,6)			:
400	7,9-8,	3,6 - 4,2	0,3(0,5)			
				ļ.		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed	Control rod travel mm	Intermediate Degree of deffection or control lever	rev/min	Control rod travel mm	4 Lowe Degree of deflection of control lever	revimin	ced Control rod travel mm	rev/min	Control rod travel
100se ca.52	1140- 1205-1	0,3-1,0 = 4,50 1150 = 9,0 1235 = 4,0 = 0,3-1,7	-	-	-	ca.23	400 100 400 580- 700	7,5 min. 19 7,9-8,1 540 =2,0 max.1,0	1100 960 500	10,0+0,1 10,2+0,2 10,6+0,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop	6 Rotational- speed limitat	(U) Motational			fuel delivery	5a) Idle stop		
Test oil temp 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min	rev <i>ir</i> nin 4	cm ³ /1000 strokes 5	rev/min	cm ^{3/1000} strakes 7	rev/min	Control rod travel mm	
1100	89,0 - 91,0 (87,0 - 93,0)	1140-1150*	700	² 3,0 - 96,0 (91,0 - 98,0)	100	19-21mmRM **	-	-	
			500	83,5 - 86,5 (81,5 - 88,5)	:		: : :		
							<u>.</u>	· 	

Checking values in brackets

t it mmiless control rod travel than col. 2

WPP 001/4 DEE 7,6 f 1. Edition

En

PES 6 A 100 D 410 RS 3038

RSV 400-1100 A 2 B 2120 L

John Deere

Komb.-Nr. 9 400 230 032

6 466 AT-05

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 1,95-2,05

Porticiosing at prestroke

Tesioi-150 4113

(1,90-2,10)

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning itorque con los valves
rev.min	mm 2	cm v100 strokes	cm# 100 strokes 4	mm 2	cm>100 strokes 3	ულ ფ
1100	10,8+0,1	10,8-11,0	0.3			
400	6,6-6,8	1,3-1,7	0,3			

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

Uppe Uppe	r rated speed	l rev/min	Interme	diate rate	ea speea	4		rated speed	(3)	raue control
Degree of deflection of control	Control rod travei	Control rod travet mm rev/min				Control- lever deflection	revimin	Control rod travel mm	rey/min	travei
rever	2	3	1	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,0	-	_	_	ca. 17	400	6,1	1100	10,8-10,9
							100	min. 19,0	650	11,8-12,1
ca. 40	9,8 4,0 1300	1145-1155 1205-1235 0,3-1,7					400 480-54 850	6,6 0 = 2,0 max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	Rotational- speed limitat	(3a) Fu	el delivery aractenstics	Starting f	uel delivery 5	4a fale stop		
Test on to	emp 40°C (104°F) cm1/1000 strokes 2	Note changed to rev/min 3	rev/min	cm:/1000 strokes 5	rev/min	cm=1000 strokes 7	rev/min 8	travel mm 9	
1100	108,0-110,0 (105,0-113,0)	1145-1155*	650	115,5-118,5 (112,5-121,5)	100 High 1200 Low 400	27,0-37,0 dle speed	RW	-	

Checking values in brackets

mm less control rod travel than col. 2

WPP 001/4

engine

4. Edition

En

PES 6 A 85 D 410/3 RS 2366 EP/RSV 325-1400 A8B674D, 707 D

325-1150 A8B674D, 707 D

supersedes 6.82 K H Dcompany BF 6 L 913

RS 2415

*** Instruction:

Test details see page 3!

RS 2532 All test specifications, are valid for Bosch Familinger from Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1

Festoil-ISO 4113

mm (from BDC)

Rotational speed rev/min t	Control rod travel mm: 2	fidel delivery cm³r100 strokes 3	Difference cn3: 100 strokes	Cuntro rod travet a.m	Fuel delivery cm ³ 100 strokes 3	Spring pre-tensioning storque control valver mm o
1000	9	4,1 - 4,5	0,4			
	6	0,6 - 1,4				
200	9	1,4 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated spee		Intern	ntermediate rated speed			Lower rated speed 3			rque control
Degree of deflection of control lever	Control rod travel min	Control red travel mm revima	1	15		Control lever deflection in degrees 7	revimin 8	Control rod frave) min	rev mus	Control rod traver mm
ca.69	1400 1450 1500	16,0 10,5 4.0		hout a	nuxilia	ca.20	325 200 325	5,5 19 - 21 5,2-5,8	1400	0
ca.68	1400 1510 1600	ca.10,0 ca. 4,0 0,3-1,5	wit	J	iliary		500 650	1,2-3,3 0 -1,5	500	1,2-1,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	ill foad stop	6 Rotational speed limital	(3a) Fu	el delivery aracteristics	delivery Starting fuel delivery 5 4a cteristics			e stop
revimin	emp 40 C (104 F) cm ³ /1000 strokes 2	Note changed to rev.min 3	revimin 4	cm ³ 1000 strokes 5	rev/min	cm≸1000 strokes 7		Control rod travel mm 9
LDA ***	0,7 bar	***	LDA *** LDA 500	0,7 bar 0 bar 43,5 - 47,5	100	119,5- 129,5	325	5,5**
(inrea	se by 1,0 cm²	 !						./.

Checking values in brackets

ischuftsbereich KH, kundendienst Kl2 Ausrustung. 1980 by Robert Bosch Ombi Postanin 50-0-7000 Stuttgart 1. Profesior the Federa Tiepusts, or James 2. prine eic Peupingue Federale d'Allemagne par Robert Brisch Gmbri.

^{*} it mmitess control rod travel than col. 2

B. Governor Settings

EP/RSV 325-1150 A8p674D, 707 D

1 Uppe	r rated speed		Interme	diate rated	speed	4)	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		5		Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
 		13	-	13	6	ļ <u>'</u>	8	9	10	11
ca.56		16,0	و ما خواد د			ca. 21	325	5,5	1130	0
	1200 1250	11,1 5,4	WILNO	out aux	(II]ar	y spring	200	19 - 21		
29	1220 1300 1380	7,5-10,4 1,3-3,6 0,3-1,5	with	auxil.	iary s	pring	325 500 660	5,5-5,8 1,4-3,4 0 -1,5	500	1,0-1,2

C. Settings for Fuel Injection Pump with Fitted Governor

	III-load stop	6 Rotational- speed limitat		el delivery aracterístics	Starting fuel delivery 5 4a Idle stop			
1	cm ³ /1000 strokes 2 0,7 bar	Note: changed to) rev/min 3	rev/min 4LDA	cm ¹ /1000 strokes 5 0,7 bar	rev/min	cm1/1000 strokes	rev/min	Control rod travel mm 9
***		***	*** LDA	0 bar	100	119,0-129,	5;325	5,5**
***	See page 3		500	43,5 - 47,5				

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

Testoil-ISO 4113

500

rev/m:n decreasing pressure - in bar gauge pressure

	^^^^		
Pump/governor	Setting	Measurement	diminution Control rod travel- XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
	Gauge pressure bar	Gauge pressure = bar	mm <u>ჯ</u> 1ჯ
all governors	0,38	0,10	0,2 - 0,3 1,6 - 2,0

Notes

(1) when n =

rev/min and gauge pressure

bar (maximum full load control rod travel)

En

^{* 1} mm less control rod travel than col. 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine por Full-load de Control-rod Test bil tem	Blivery	Rotational-speed limitation	Fuel delin	very characteristics	Starting Idle switchin	tuel delivery ng point	Intermed rotationa Torque-o	speed
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	revimin	cm ⁵ 1000 strakes	(ev/min	mm
1	2	3	4	5	6	· ,	8	

BF 6 L 913 - PES 6 A D..RS2366, 2415 F or B output at ... min⁻¹

1400 1400 1325 1325 1325 1250	88,0 - 90,0 84,0 - 86,0 90,5 - 92,5 87,5 - 89,5 82,5 - 84,5 87,0 - 89,0	1420 1420 1340 1340 1340 1270	800 800 850 800 800	80,0 - 83,0 66,0 - 69,0 88,5 - 90,5 82,5 - 85,5 67,5 - 70,5 84,5 - 87,5	160 PS / 142 PS / 168 PS / 160 PS / 140 PS /	n = 2800 n = 2800 n = 2650 n = 2650 n = 2650 n = 2500
1250	83,0 - 85,0	1270	800	77,5 - 80,5	148 PS /	n = 2500
1250	81,0 - 83,0	1270	800	75,5 - 77,5	140 PS /	n = 2500
1200	86,0 - 88,0	1220	800	84,5 - 87,5	156 PS /	n = 2400
1200	78,0 - 80,0	1220	800	68,0 - 71,0	135 PS /	n = 2400
1200	84,0 - 86,0	1180	800	84,5 - 87,5	152 PS /	n = 2330
1150	93,5 - 85,5	1165	800	84,5 - 87,5	152 PS /	n = 2300
1150	79,0 - 81,0	1165	800	72,0 - 74,0	142 PS /	n = 2300
1100	82,0 - 84,0	1115	800	84,5 - 87,5	147 PS /	n = 2200
1075	82,0 - 84,0	1090	800	84,5 - 87,5	144 PS /	n = 2150
1075	78,0 - 80,0	1090	800	76,0 - 79,0	136 PS /	n = 2150
1050	76,5 - 78,5	1065	800	73,5 - 76,5	130 PS /	n = 2100
1000	82,5 - 84,5	1015	800	84,5 - 87,5	137 PS /	n = 2000
1000	77,0 - 79,0	1015	800	79,5 - 82,5	130 PS /	n = 2000
900	82,0 - 84,0	910	800	84,5 - 87,5	125 PS /	n = 1800
875	68,0 - 70,0	885	800	66,0 - 69,0	106 PS /	n = 1750
750 750	85,0 - 87,0 78,0 - 80,0	760 760	-	· -	105 PS / 100 PS /	

Please note

- 1. ** With Liebherr exavators: single-lever control, therefore use shorter screw 1 423 400 031 and set this at 0,3 1,0 before the stop.
- LDA adjustement to be carried out 2. according to VDT-W- 420/305
- Dimension H = 22.5 mm = basic setting of LDA.3.

40

WPP 001/4 MB 2,0 g 4

5. Edition

En

Testoil-150 4113

PES 4 M 50 C 320 RS 103 RSF 375/2250 M 19 Komb. Nr. 0 400 074 978

Sales model

0 400 074 977

company Daimler-Benz

OM 615 44 kW (60 PS)

All test specifications are valid for Boson Fuel injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Porticiosing at prestroke

1,70-1,80 (1,65-1,85)

mm (from BDC)

18,5-21,5

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rēv/min	mm	.cm%100 strokes	cm 1/100 strokes	mm	cm ³ /100 strokes	тm
1	2	13	4	2	3	<u>, , , , , , , , , , , , , , , , , , , </u>
1000	12,7 ⁺⁰ ,	1 3,2-3,3	0,25 (0,	3)		
375 1800 2200	6,9-7,	1 0,65-0,75	0,1 (0,1 0,25 (0, 0,25 (0,	3)		

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated s	speed		Upper rated sp	eed		-Variations in d	ontrol rod trav	iei
Degree of deflection	Control rod	Rotational speed	deflection	Control rod travel	Rotational speed	:	Rotational speed	Control rod trave
of control lever	mm	rev/min	ot control lever	mm	revimin		rev min	mm
1	2	[3	14	5	6	.7	_გ	ý
13-17	min.12 max.12 6,9-7, **	,0 300	50 (3) (1)	.1	6 2500	(12) (13) (14)	100 1800 1000 Switching s	min. 20,3 12,2-12,4 12,7-12,8

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load C	19)	Full-load speed Ra regulation	Variations delivery	in fuel (17)	, idie	Difference
rev/min	cm²/1000 strokes	revimin 3	rev/min	cm ² /1000 strokes	revimin cm /1000 strokes 6 7	cm ² /1000 strokes 3
2200	33,0-35,0 (32,0-36,0)	2500* RW 7,2-7,	\$800 6 1000	(32,0-36.0)	375 6,5-7,5	1.0 1.5 2.5 siehe 3.0 Pkt. 8a

Checking values in prackets

ca: jmges xxymprigd travel than in Column 2

- Position the idle-speed auxiliary spring at $n = 385 \text{ min}^{-1}$ so that the control-rod travel is forced further by 0.1 0.2 mm.
- 2. Adjusting the idle control-lever position:

 At 1000 min⁻¹, control-rod travel 1.9 2.0 mm.
- Testing the idle-speed auxiliary spring shutoff
 Control-lever position 47°. No change in control-rod travel after switching point up to 550 min-1.
 Control-lever position 30°. Rotational-speed range 350 min-1 450 min-1.
- 4. Testing the pneumatic shutoff box

 Control lever agains* idle stop.

 At n = 375 min⁻¹ and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

WPP 001/4 MB 2,4 j

3. Edition

PES 4 M 55 C 120 RS 106 RSV 350 - 1500 MOB 128 Komb.-Nr. 0 400 064 033

Sales model 0 400 064 035 supersedes 4.80 Daimler-Benz

OM 616 38 kW

1-3-4-2-0-90-180-270 + 0,5(0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 (1,05-1,05)

mm (from BDC) RW = 18,5-21,5 mm

Rotational speed rev/min	travei	Fuel delivery cm·/i00 strokes 3	Difference cm:/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm: 190 strokes 3	Spring pre-tensioning -torque control valvel mm
1500	12,8+0,1	3,7-3,8	0,25(0,3)			
350	6,8-7,0	0,õ-0,ઇ	0,1(0,15)			
1000	13,7-13,9		0,25(0,3)			
600	14,0-14,2		0,25(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Interm	ediate rati	ed speed	Control lever detlection in degrees 7		rated speed Control fod travel mm	(3.)	que control Control roa travel mm
loose	800	0,3-1,0				ca. 18	350 350	6,4		12,8-12,9
ca.53	1650-1	570 = 11,9 680 = 4,0 0,3-1,7					100 900 770-830	min.20,3 max. 1,5 2,5	600	14,0-14,2

the numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

ピリ	acts bsot-li	Rotational- speed limitat	el delivery aracteristics	Starting fuel delivery 5			G'e stop		
Test on to	cm ^{-/} 1000 strokes	Note changed to 1 rev/min 3	revimin 4	cm:/1000 strokes 5	revimin	cm=1000 strokes 7	revimin 8	travel mm 9	
1500	37,0-38,0 (36,0-39,0)	1550-1570*	1000 600	37,5-39,5 (36,5-40,5) 38,0-40,0 (37,0-41,0)	100 350	min. 53,0 6,0-8,0 (5,5-8,5)	350	6,9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.84

Geschaftsbereich KM. Kundendienst. Kfz-Ausrustung. 3 1980 by Robert Bosch GmbH. Postfach 50: 0-7000 Stuttgarf 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

supersedes4_80

company Daimler-Benz

OM 516

44 kW

WPP 001/4 MB 2,4 K

3. Edition

En

Testoil-ISO 4113

PES 4 M 55 C 320 RS 106 RSV 350...1750 MOB 129

Komb.-Nr. 0 400 064 034

1-3-4-2=0-90-180-270 -0,5(0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 1,70-1,80

Porticiosing at prestroke (1,65-1,85)

mm (from BDCRW 18,5-21,5

Rotational	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning itorque control valvei
rev/min	mm 2	cm /100 strokes	cm ^{-/} 100 strokes	mm 2	cm·/100 strokes	mm ô
1730	13,1+0,1	3,85-3,95	0,25(0,3)			_
300	6,8-7,0	0,6-0,8	0,1(0,15)			
1100	13,7-13,9		0,25(0,3)			
600	14,1-14,2		0,25(0,3)			
_						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Uppe	r rated speed	rev/min	Interme	ediate rati	ed speed	(4)		rated speed	(3)	rque contro: I Control roa
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm revimin	4	5	6	Control- lever deflection in degrees 7	revimin 8	Control rod travel mm	revimin	travel mm
loose	800	0,3-1,0				ca.18	350	6,4	1730 1100	13,1-13,2 13,7-13,9
ca.56	1885-1	780 = 12,2 915 = 4,0 = 0,3-1,7					100 900 350 770-830	min. 20,3 max. 1,5 6,8-7,0 2,0	600	14,1-14,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(20)	uli-load stop	6 Rotational- speed limitat	11.3241	el delivery aracteristics			49) igle stop (Control rod	
Test oil to	emp 40°C (104°F) cm//1000 strokes 2	changed to rev/min	rev/min	cm:/1000 strokes 5	rev/min	cm ² /1000 strokes 7	rev/min 8	travei mm 9	
1730	38,5-39,5 (37,5-40,5)	1760-1780*	1100 600	37,5-39,5 (36,5-40,5) 38,0-40,0 (37,0-41,0)	100 350	min. 53,0 6,0-8,0 (5,5-8,5)	350	6,9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

WP 001/4 MB 2,4 K 2

1. Edition

Testoil-ISO 4:113

PES 4 M 55 C 320 RS 106 Komb.-Nr. 0 400 074 081

RSV 400-2200 MOB 351

Sales model 0'400 074 082 1-3-4-2 = 0-90-180-270 = 0,50 (0,75)

supersedes.

Daimler-Benz OM 616

53 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 (1,65-1,85)

mm strom BDCRW = 20,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control foid traver	Fuer delivery	Spring pre-tensioning (torque-contro) valve)
rev.min		cm ~100 strokes	omini 100 strokes 4	2	cm ±100 strokes 3	mm ō
2180	12,9+0,1	4,0-4,1	0,2(0,3)			
400	6,4-6,6	0,6-0,8	0,1(0,15)			
1000	13,4-13,5		0,25(0,3)			
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed	rev/min	interr	nediate rat	ed speed	4		rated speed	(3) T _O	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	ô	Control lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0				ca.39	400	6,5	1000 1750	13,4-13,5 13,1-13,4
ca.70	2370-23	250 = 12,0 390 = 4,0 0,3-1,7					Set auxi control-	liary idle rod travel	spri	ng at 2,0 m

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat	11.524	ei delivery aractenstics	Starting fuel delivery 5 4a idle sto			e stop (Control fod
Test oil to	emp 40°C (104°F) cm ³ /1000 strokes 2	Note changes to rev/min	rev/min	cm//1000 strokes 5	rev/min	cm#1000 strokes 7	revirnin 8	travei mm
2180	40,0-41,0 (39,0-42,0)	2240-2250*	1000	37,0-38,0 (36,0-39,0)	100	min. 53 6,0-8,0 (5,5-9,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumpswpp 001/4 MB 2,4 m 1 and Governors 2. Edition

En

PES 4 M 55 C 320 RS 107 - 1

RSF 375/2250 M 17

Komb. Nr. 0 400 074 956 Sales model 0 400 074 957

supersede-5.83 company Daimler Benz OM 616 53 kW (72 PS)

1 - 3 - 4 - 2 0 - 90-180-270

All test specifications are valid for Posch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,20-2,30 (2.15-2.35)

mm (from BDC) 18,5-21,5^{Control rod travel}

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning accompensating valves
rev/min	mm	cm /100 strokes	cm*d00 strokes	mm	cm =100 strokes	ָויאָת
1	2	3	4	2	3	6
1000	13,9+0,1	3,9-4,0	0,25(0,3)			
375 1800 2200	6,5-6,7	0,6-0,7	0,1 (0,15 0,25(0,3) 0,25(0,3)	1		÷
	j	1 A	•			
Set unitorm deliven	y according to t	he values in the state of the s				Checking values in brackets

B. Governor Settings

Lower rated sp	eed		Upper rated sp	eed •		'Variations in Co	" ntro⊑red frav	el
deflection	Control rod travel	Rotational speed	deflection	Control rod	Retational speed	•	Rotational speed	Control rod travel
af control lever	mm	lrev min	dever dever	mm	to, mic		nes non	imm
1	2	з	14	5	<u>[</u> 6	.7	.8	ģ
9-13	min.11,		50 🕥	13,0-13 8,7-9,1	i -	12	100	min. 20,3
(3)	6,5-6,7	375 400	(8)	0-1,0	2950	(13)	1800 1000	13,3-13,5 13,9-14,0
(4)	2,5	- 720 - 820	(1)	-		6	: Switching pi	+

C. Settings for Fuel Injection Pump with Governor Mounted

full load de		Full load speed (8a) regulation	Variations delivery	in fuel (17)	1	uel delivery	Difference
rev/min	cm1/1000 strokes 2	rev/min 3	rev/min	cm /1000 strokes	revimin 6	cm 71000 strokes	cm ¹ /1000 strokes 8
2200	39,5-41,5 (38,5-42,5)	2500* RW 8,7-9,1	1800 1000	(38,0-42,0)	375	min. 53,0 6,0-7,0 (5,5-9,0) 23,0-27,0 (22,0-28,0)	6,0 (12a) 1,0 1,5 2,5 See 3,0 Point 8 a

Checking values in brackets

*ca. 4,2 less control rod travel than in Column 2

1.84

Grischaftsbergich KH. Kundendienst, Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50. D. 7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d Allemagne par Robert Bosch GmbH.

- 1. ** Position the idle-speed auxiliary spring at n = 385 min^{-1} so that the control-rod travel is forced further by 0.1 0.2 mm.
- 2. Adjusting the idle control-lever position:

 At 1000 min⁻¹, control-rod travel 1.9 2.0 mm.
- Testing the idle-speed auxiliary spring shutoff
 Control-lever position 47°. No change in control-rod travel after switching point up to 550 min-1.
 Control-lever position 30°. Rotational-speed range 350 min-1 450 min-1.
- 4. Testing the pneumatic shutoff box
 Control lever against idle stop.

At n = 375 min^{-1} and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 3.0 o 2

2. Edition

En

PES 5 M 55 C 320 RS 108-1 RSF 350/2300 M 16 1 - 2 - 4 - 5 - 3 0 - 72-144-216-288:0,50 (0,75) Altitest specifications are valid for Posch Fuel Injection Pump. Test Benches and Testers

Komb. Nr. 0 400 075 987 Sales model 0 400 075 988

superseder5.83 company Daimler-Benz OM 617 65 kW (88 PS)

A. Fuel Injection Pump Settings

Port closing at prestroke

2,20-2,30 (2,15-2,35)

18,5-21,5

Rotational speed	Control rod travel	Fuel delivery	Difference	Control red travel	(Fue: delivery	Suring pre-tensioning (compensating valve)
rev'min	mm	cm 7100 strokes	cm ⁹ 100 strokes	rnm	cm 100 strokes	mm
1	2	3	4	2	3	6
1000	$13,9^{+0}$	3,9-4,0	0,25(0,3)			
350 1800 2200	6,5-6,7	0,6.0,7	0,1 (0,15) 0,25(0,3) 0,25(0,3)	i		

Set uniform delivery according to the values in [

Checking values in brackets

B. Governor Settings

•			1		• • • •	•		the state of the s
Elower rated s	speed		Upper rated sp	eed		Variations in c	entrot rest tra	vel
Degree of deflection of control	Control rod travel	Rotational speed	Degree of deflection of control	Control rod Iravel	Rotational speed		Relational ispeed	Control rod travel
Jever	mm	trevimo	tever	mm	fey min		free mes	mm
1	. 2	3	-4	5	6	7	.8	9
9-13 (2)	min.10, max.10, 6,5-6,7 **		50 8	13,0-13 9,1-9 - 0-1,0	5 2500	(12)	1800 1000 Switching p	min. 20,3 13,5-13,7 13,9-14,0

C. Settings for Fuel Injection Pump with Governor Mounted

Full load di	plivery (19)	Full-load speed (Ba)	Variations delivery	in fuel (17)) अतिह	fuel delivery	Difference
rev/min 1	cm /1000 strokes	tev/min 3	rev/min 4	cm / 1000 strokes	/ _rev∂mo ∃6	icm 71000 strokes	cm ¹ /1000 strokes 8
2200	39,5-41,5 (38,3-42,5)	2500* RW 9,1-9,5	1800 1000	39,0-41,0 (38,0-42,0) 39,0-40,0 (38,0-41,0)	100 350 2500	min. 53,0 6,0-7,0 (5,5-9,0) 23,0-27,0	6,0 (122 1,0 1,5 2,5 See
						(22,0-28,0)	3,0 Point 8 a 16

Checking values in brackets

Ca.4,0 less control rod travel than in Column 2

1.84

BOSCH

Geschaftsbereich KH. Kunderidienst. Kfz. Ausrüstung. 1980 hv. Rohert Bosi≏h GmbH. Postfach 50. D. 7000 Stuttgart F. Printed in the Federal Republic of Germany Impririne en Republique Federale d Ailemagne par Robert Bosch. CmbH.

- 1. Position the idle-speed auxiliary spring at $n = 385 \text{ min}^{-1}$ so that the control-rod travel is forced further by 0.1 0.2 mm.
- 2. Adjusting the idle control-lever position:

 At 1000 min⁻¹, control-rod travel 1.9 2.0 mm.
- Testing the idle-speed auxiliary spring shutoff
 Control-lever position 47°. No change in control-rod travel after switching point up to 550 min-1.
 Control-lever position 30°. Rotational-speed range 350 min-1
- Testing the pneumatic shutoff box

 Control lever against idle stop.

 At n = 375 min⁻¹ and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

WPP 001/4 MB 3,0 V 1 1. Edition

PES 5 M 55 C 320 RS 109

RSV 350-1650 MOB 350-1

supersede Daimler-Benz

Komb.-%. 0400 075 003

company OM 617

Sales model

0 400 075 004

57 kW

47 1-2-4-5-3=0-72-144-216-288 ±0,50 (0,75)

f All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,20-2,30 Forticiosing at prestroke (2,15-2,35)

mm (from BDC RW = 20.0 mm

Rotational speed rev/min	Control rod travel	Fuel delivery cm··100 strokes 3	Ditterence cm 100 strokes	Control rod travel mm 2	Fuel delivery om 100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1530 350	13,5+0,1	4,0-4,1	0,2 (0,3)			
750	14,0+0,1		0,25(0,3)			

Adjust the fuel delivery from each outlet according to the values in C

B. Governor Settings

	r rated speed Control rod travel mm 2		Interme	ediate rated	speed	Control- lever deflection in degrees	Lower revimin 8	rated speed Control rod travel mm	(3)	rque control Control rod travel mm
loose	800	0,3-1,0				ca.40	350	6,2-6,5	750 1300	14,0-14,1 13,6-13,9
*ca.75	1780-1	680=12,5 800= 4,0 0,3-1,7	S	et aux	iliary	idle sp	ring at	2.0 mm co		rod travel.

The numbers denote the sequence of the lests $Adjust ment angle = 0^\circ = horizontal control lever position.$

C. Settings for Fuel Injection Pump with Fitted Governor

(49)	- read stop	6 Rotational spaced imitat	6 Rotational 3a Fuel de charact		stating to stating to racteristics		(40)	Cours was
rev min	emp 40 C (104 F)	changed to review	rev	cm 1000 strokes	rev min	om 1000 strokes	re, min 8	trave mm
1630	40,0-41,0 (39,0-42,0)	1670-1680*	750	39,0-41,0 (38,0-42,0)	100 350	_	İ	

Checking values in brackets

■ 1 mm less control rod travel than col. 2

WPP 001/4 MB 3.0 v 2

1. Edition

PES 5 M 55 C 320 RS 109

RSV 400-2200 MOB 352

supersea Daimler-Benz

Komb.-Nr. 0 400 075 001 Sales model 0 400 075 002

company UM 617 engine 65 kW

1 - 2 - 4 - 5 - 3 = 0 - 72 - 144 - 216 - 288 - 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,20-2,30 Port closing at prestroke (2,15-2,35)

mm wom BD W=20.0mm

Control rod	Fuel gelivery	Difference	Control rout	Fuer Jenvery	Spring pre tensioning itorque-control valvei
mm 2	cm·/100 strokes	100 strokes	mm 2	cm 100 Strokes	mm õ
13,2+0,1	4,1-4,2	0,2(0,3)			
6,2-6,4	0,6-0,8	0,1(0,15)		-	
13,9+0,1		0,25(0,3)			
,					
	mm 2 13,2+0,1 6,2-6,4	travel mm 2 cm=100 strokes 3 13,2+0,1 4,1-4,2 6,2-6,4 0,6-0,8	travel mm 2 cm-/100 strokes 100 strokes 4 13,2+0,1 4,1-4,2 0,2(0,3) 6,2-6,4 0,6-0,8 0,1(0,15)	travel mm 2 cm 100 strokes 100 strokes 4 13,2+0,1 4,1-4,2 0,2(0,3) 6,2-6,4 0,6-0,8 0,1(0,15)	travel mm 2 2 cm 100 strokes 100 strokes 4 13,2+0,1 4,1-4,2 0,2(0,3) 6,2-6,4 0,6-0,8 0,1(0,15)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	rated speed	l rev/min	Intermed	nate rated	speed	4	Lower	rated spend	(3)	rque contro:
Degree of deflection	Control rod	Control rod travel		1		Control		Control ma travel		Control rod travel
of control	mm	mm rev/min		1		deflection in degrees	revimin	mm	rev min	mm
1	2	3	4	5	ô	7	8	9	10	11
loose	900	0,3-1,0				ca.39	400	6,3	1000 1500	13,9-14,0 13,5-13,8
ca. 70		250 = 12,2	Se	t auxi	liary	idle sp	ring at	2.0 mm cor	troi-	od travel.
(2a)		420 = 4,0 0,3-1,7								

The numbers denote the sequence of the tests Adjustment angle = 0° = horizontal control lever position.

C. Settings for Fuel Injection Pump with Fitted Governor

	emp 40 C (104 F)	Rotational speed imitat (3a) Fuel delivery characteristics		•	Starting tigge	uer he very 5	Grane :	
revimin	cm::1000 strokes	revimin	rev min	cm 1000 strokes	rệy min	cm 1000 strokes	l _	mm
1	2 10 0	0040 2050+	1000	20 0 41 0	100	min 53	8	9
2180	41,0-42,0 (40,0-43,0)	2240-2250*	1000	39,0-41,0 (38,0-42,0)	100 400	min. 53 6,0-8,0 (5,5-9,0)		

Checking values in brackets

* 1 mm less control rod travel than coil 2

40

WPP 001/4 MB 3,0 v 3

1. Edition

PES 5 M 55 C 320 RS 109-1

RSV 400-2200 MOB 352

upersear 5

Komb.-ii. J 400 075 005

Sales model

Port closing at prestroke

0 400 075 006

company Daimler-Benz OM 617 engine 65 kW

1 - 2 - 4 - 5 - 3 = 0 - 72 - 144 - 216 - 288 - 0,50 (0,75)

All test specifications are valid for Bosch Fuel injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,20-2,30

(2,15-2,35)

mm (from BDC) RW = 20,0 mm

Rotational speed	Control rod	Fuel delivery	Difference	Control rod traver	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min	mm (2)	cm:/100 strokes	cm ^{-/} 100 strokes	mm	cm -100 strokes	mm
1	2	3	4	2	3	6
2180	13,2+0,1	4,1-4,2	0,2(0,3)			
400	6,2-6,4	0,6-0,8	0,1(0,15)			
1000	13,9+0,1		0,25(0,3)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

	(1) Uppe	er rated speed		intern	nediate ra	tea speea	(4)	Lowe	rated speed	(3) 10	rque control
	Degree of deflection of control lever	control rod travel mm	Control rod travei		5	6	Cuntrol lever deflection in degrees	rev. min	Control rod travel mm	rev.min	Control rod travel mm
	loose	800	0,3-1,0				ca.39	400	6,3	1000 1500	13,9-14,0 13,5-13,8
*	ca.70		50 = 12,2 20 = 4,0 0,3-1,7	.	Set a	uxilia	y idle	spring a	t 2.0 mm d	ontrol	-rod travel

The numbers denote the sequence of the *s-Adjustment angle = 0° = horizontal control lever position.

C. Settings for Fuel Injection Pump with Fitted Governor

	arrigad stop emp. 40. Clirt04. F	6 Rictational speed imitar	Ga Fuel deriven, indirectors to		3 e 3 e	Je 39 Je√. (5)	da die stop	
ter min	cm 1000 strokes	changed to revious 3	rev min	om 1000 strakes 5	rev min	om 1000 strakes	rev 1710 8	trave: mm g
21ଟ0	41,0-42,0 (40,0-43,0)	2240-2250*	1000	39,0-41,0 (38,0-42,0)	100 400	min. 53 6,0-8,0 (5,5-9,0)		

Checking values in brackets

* 1 mm less control rod travel than co- 2

1.84

BOSCH

Geschaftspereich KHI kundendienst Kfz Ausrustung 1980 by Robert Bosch GmbH. Postfach 50: D-7000 Stuftgart 1: Printed in the Federal Republic of German-Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 MB 3,0 V

1. Edition

PES 5 M 55 C 320 RS 109-1

RSV 350-1650 MOB 350-1

Komb.-. 0 400 075 007

0 400 075 008

Daimler-Benz OM 617

57 kW

Saies model

1 - 2 - 4 - 5 - 3 = 0 - 72 - 144 - 216 - 288 - 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,20-2,30

(2,15-2,35)Port closing at prestroke

mm trom BDC RW = 20,0 mm

Rotational	Control rod	Fuel delivery	Difference	Cuntrol rod travel	Fuel delivery	Spring pre-tensioning (torque-contro- valve-
speed rev/min	mm 2	cm ^{-/} 100 strokes	cm 100 strakes 4	2	cm +100 strokes	, E. W.
1630	13,5+0,1	4,0-4,1	0,2(0,3)			
350	6,2-6,5	0,6-0,8	0,1(0,15)			
750	14,0+0,1		0,25(0,3)			
	1	ł				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of ceffection of control lever	Control rod travel mm 2	Control rod travel mm rev/min	Intern	nediate	rated speed	Control lever deflection in degrees 7	revimin 8	rated speed Control rod travel mm 9 6 , 2 - 6 , 5	1(3)	Control rod travel
100se	800 1670-16	0,3-1,0 $680 = 12,5$							1300	13,6-13,9
23	1780~18	300 = 4.0 0.3-1.7		Set.	auxilia	ry idle s	bring a	t 2.0 mm c	dntrol	rod travel

The numbers denote the sequence of the tests \star Adjustment angle = 0° = horizontal control lever position.

C. Settings for Fuel Injection Pump with Fitted Governor

29	ateoad stop	6 Rotational speed mitati		er server. aracter stics	Staring *	uer betwery 5	(48)	e stop (Control rod
revimin	emp: 40°C (104°F) cm=1000 strokes 2	Note charged 1: rev min	rev min	om 1000 strokes	rev min	cm +000 strakes		travel min 9
1630	40,0-41,0 (39,0-42,0)	1670-1680*	750	39,0-41,0 (38,0-42,0)	350	min. 53,0 6,0-8,0 (5,5-9,0)		

Checking values in brackets

1 mm less control rod travel than col. 2

1.34

Geschaftsbereich KM. Kundendienst. Kfz. Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50: D-7000 Stuttgart. 1: Printed in the Federal Republic of Germans Imprime en Republique Federale d Allemagne par Robert Bosch. GmbH.

WPP 001/4 PEN 6,0 e

3. Edition

PES 6 MW 100/320 RS 1004 0 403 476 011

RSV 325-1250 MW/308

superseas 5.83

Volvo/Penta TD 60 D

118 kW (160 PS)

1-5-3-6-2-4 $0-60-120-180-240-300 \pm 0,50 (0,75)$

All test specifications are valid for Bosch Fuel Injection Pump Test Beriches and Testers

A. Fuel Injection Pump Settings

Porticiosing at prestroke

(2,75-2,95)

mm (from BDCRW 9,0-12,0 mm

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Suring pre tensioning storque-control valvei
tea/wiu	mm (2)	cmi/100 strokes	cm ^{-/} 100 strokes	mm	cm:/100 strokes	mm
1	2	3	4	2	3	6
1000	10,5+0,1	8,95-9,15	0,35(0,6)			
325	4,3-4,5	1,0 - 1,3	0,35(0,55			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settirigs

(1) Uppe	er rated spiced	revimin	Intern	negiate rat	ed speed	(4)	Lower	rated speed	(3)	rque control
Degree of deflection of control lever	Control roce travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees 7	rev/min	Control rod travel mm	revimin	Control rod travet mm
loose	800	0,3-1,0	1			ca. 26	325	3,9	350	11,1+0,1
	x =	4,0					325	4,3-4,5	500	10,7-0,1
ca.49	1335-1	330 = 9,6 $365 = 4,0$ $0,3-1,7$	_				450-510	= 2,0	1250	10,5+0,1

The numbers denote the sequence of the tests

C. Se'ttings for Fuel Injection Pump with Fitted Governor

(2b) Fu	Fulf-load stop 6 Rotational-speed limitat		11.12	Fuel delivery S characteristics It		uel delivery 5	4a idle stop		
Test oil to	emp 40°C (104°F) cm·/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm:/f000 strokes 5	rev/min 6	cm#1000 strokes 7	rev/min 8	Control rod travel mm 9	
1000	89,5-91,5 (87,5-93,5)	1290-1300*			100 325	min. 140 10,0-13,0 (7,5-15,5		4,4	

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 Vol. 6,0 p 3. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1004 RSV 650-750 MW 4/311-1

0 403 476 009

supersede 5.82 company Volvo TD 60 B 6 84 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm (2)	cm //100 strokes	100 strokes 4	mm 2	cm:/100 strokes 3	mm ô
700	10,9+0,1	8,1-8,3	0,35(0,6)			
650	5,0-5,1	1,7-2,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interme	ediate rate	a speed	(4)		rated speed	(3)	rque controi
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	1	5	6	Control lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	1			ca. 34	650	4,5	375	11,9+0,6
	X =						650	5,0-5,1	470	10,9+0,1
ca.40		0 = 9,9 0 = 4,0 0,3-1,7					690-75	0 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	ill-load stop emp 40°C (104°F)	Rotational- speed limitat	11.341	ei delivery aractenstics	Starting f Idle	uel delivery 5	4a) Idle	e stop Cantrol rod travel
rev/miñ 1	cm ³ /1000 strokes 2	changed to) rev/min 3	revimin 4	cm /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
700	81,0-83,0 (79,0-85,0)	750-760 *						

Checking values in brackets

* 1 mm less control rod travel than col 2



WPP 001/4 PEN 6,0 r 4 1. Edition

PES 6 MW 100/320 RS 1004 RSV 650-750 MW 4/311-3

0 403 476 019

Volvo-Penta

TD 60 DG 86 kW

Air rust specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2,75-2,95)

mm strom BDC: RW = 9.0-12.0 mm

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm1/100 strokes	100 strokes	m.m.	om /100 strokes	mm 6
700	11,3+0,1	9,3-9,5	0,35 (0	,6)		·
650	4,5-4,6	1,7-2,1	0,35 (0	,55)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travel mm	Control rod travel mm rev/min	Interm	ediate rat	ed speed	Control lever deflection in degrees 7	Lower revimin 8	rated speed Control rod travel mm	(3.)	rque cantroi Control rad travel mm
loose	800	0,3-1,0				ca. 34	650 650	4,0 4,5-4,6	375 470	11,9-12,5 11,3-11,4
ca.40		50= 10,3 90= 4,0 ,3- 1,7					690-	750 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(20)	st oil temp 40°C (104°F) Note		11.32	iel delivery aracteristics	Starting for	Cont		
	cm ² /1 000 strokes 2	changed to) rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min	cm~1000 strokes 7	rev/min	travel mm 9
700	93,0-95,0 (91,0-97,0)	750-760*						

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.84

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 2. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Prioted in the Federal Republic of Germany imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 PER 8,8 a 1

6. Edition

Testoil-ISO 4113

PES 8 MW 100/320 RS 1011 ROV 375... 1300 MW 18-1 Komb.-Nr. 0 403 448 102 supersedes 5.82
Perkins
AV 8.540
engine 138 kW

Port-closing mark on rear side

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,50-2,60 (2,45-2,65) mm (from BOC)bei RW = 9,6-12,0 mm Port closing at prestroke Control rod travel Fuel delivery Spring pre-tensioning Difference Fuel delivery Rotational speed Control cod (forque-control valve) cm³/ cm³/100 strokes mm cm³/100 strokes 100 strokes mm rev/min mm 2

1300	10,1+0,1	9,2-9,4	0,3 (0;6)		
375	5,0-5,1	1,05-1,45	0,3 (0,59)	
800	10,1+0,	i	0,5 (0,7)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate rated speed			Lower rated	speed	Sliding sleeve travel		
	rev/min Control	Control rod ta	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	 	①
	rod travel	mm rev/min (28)	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300	15,2-17,8	30-50	700	4,7	ca. 11	100	min. 6,5	1390 1410	
	1600	0,0-1,0		450	8,3		375	4,9-5,0	515 575	-
ca. 64	9,1 4,0	1365-1375 1425-1455				(3a)	470-5	530=2,0	375	1,2-1,3

Torque control travel a =

шш

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten	stop	Rotational-speed (20) limitation intermediate speed	Fuel deliv	ery characteristics 58 peed 50	Starting Idle switchir		Torque- travel	control 5 Control rad
rev/min cm³/1000 strokes		rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travei mm
1	2	3	4	5	6	7	8	9
1300	92,0-94,0 (90,0-96,0)	1365-1375*	800	87,0-91,0 (85,0-93,0)	100 375	min. 140 (19 - 21 RM) 10,5-14,5 (8,0-17,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

Port closing and TDC markings

17°

Comb.-No.

 $^{\rm O}$ camshaft between port-closing and TDC

at control-rod travel 10,5 mm

at control-rod travel
21 mm (Start)

110

... 102

WPD 001/4 RVI 8,8k 6. Edition

En

50 4113

PES 6 MW 100/320 PS 1016

ROV 300-1300 MW 25

Komb.-Nr. 0 403 446 123

superseded 1.33
company RVI
engine MIDR06.02-12
125 kW (170 PS)

Ail test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port-closing mark 10,5° after port closing.

A. Fuel Injection Pump Settings

3,00 Port closing at prestroke (2.0g

3,00-3,10 (2 95-3,15)

mm (from BDC) RW = 9,0 - 12,0

	<u> </u>	K-40-3-131				
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1300	11,1+0,	1 8,95-9,15	0,35(0,6			
300	5,7-5,8	0,95-1,35	0,35(0,5	5)		
900	11,1+0,1		0,5 (0,7)		
500	9,8-9,9					
	t .		1	1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		}	1 1 1			speed	Sliding s	Sliding sleeve travel	
deflection	Control	Control rod (18	/ denection		Control rod travel	Degree of deflection		Control rod travel		1
of control	rodtravel	rèv/min (2)	of control	rev/mir:	mm 4	of control lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300 1650		8			ca.13	200 300	max. 7,5		
ca.62		1355-1365 1485-15 1 5				340-600		, -,,-		
						(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter	•	Rotational-speed 20 ilmitation intermediate speed			Starting Idle switchin		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
LDA 1300	0,67 bar 89,5-91,5 (87,5-93,5)	1355-1365*	LDA 900 LDA 500	0,67 bar 85,0-89,0 (83,0-91,0) 0 bar 56,0-58,0 (54,0-60,0	100 300	95,0-105,0 9,5-13,5 (7,0-16,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

7901g17 500	ray min noreasing pre	ssure – in bar gäuge pressure	
Alimpi solvernor	Setting	Measurement	arminution Control rod fravelli afference
	Gauge pressure	par Gauge pressure :	par mm
RS 1516 + MW 2	0,23	0,67 0 0,20	10,7-10,9 11,1-11,2 9,8-9,9 10,2-10,3
Notes (1) when a	révimin and	par (* maximum full-load	control rod travell

Testoil-ISO 4113

PE 6 MW 100/720 LS 1017 RO 300/1250 MW 26

En

supersedes 11.82 KHD

KHD 9,6g

company

F6L413FX engine

150 kW (205 PS)

0 403 546 003

1 - 6 - 5 - 4 - 3 - 2 $0 - 75 - 120 - 195 - 240 - 315 \stackrel{+}{-}0,50$ (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.05-3.25)

mm (from BDC) RW = 9.0 - 12 mm

011 01031119 01 21 00	(J, UJ-J, EJ/				
Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
rev/min 1	2	3	4	2	3	6
1250	11 9+0	1 11 1-11 3	0,5(0,6)			
			1			1
350	8,2-8	4 1,25-1,65	0,35(0,5	1		
700	12,7+0	,1	0,5 (0,7	P		
		1				i
	}	i	}	1		į

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che	ck Control rod travel	Full-load s Setting po			rev/min	Idle spec	Control rod travel		cifications 5 Control rod travel	rev/min	Control rod travel
600	19,2-20,8	600	20,0	!	1295-1310 1345-1375	1		350	i • i • i	850	12,7-12,8
1450	0,0-1,0							380-	440 = 2,0	1100	11,9-12,0

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor of Test oil ten	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 3b	Starting for Idle spee	delivery Control Tod travel
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ¹ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm
1250	111,0-113,0 (109,0-115,0)		700	109,5-113,5 (107,5-115,5)	3 50	126,5-136,5 (123,5-139,5) 12,5-16,5 (10,0-19,0) 70 (80-300)

Checking values in brackets

1.84

BOSCH

40

WPP 001/4 RVI 5,5 a

2. Edition

En

PES 6 MW 80/320 RS 1104 RSV 300-1450 MW 2/801

0 403 476 013

supersedes 5.83 RVI

angine 97,8 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Beriches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(1,70-1,90)

mm (trom BDC)RW = 9,0-12,0 mm

Rotational	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning itorque-control valvei
rev/min	mm (2)	cm1/100 strokes	cm ¹⁷ 100 strokes	mm	cm1/100 strokes	mm
1	2	3	3	2	3	6
900	10,4-10,5	5,05-5,25	0,25(0,4)			_
300	4,7-4,9	0,85-1,15	0,2(0,35)			
1450	9,4-9,5		0,35(0,45)			
}						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

12 "	r rated speed Control rod travel mm		Interm	ediate rate	speed 6	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	revimin 10	raue control Control roa travel mm
loose	800 x =	0,3-1,0 4,0				ca. 20	300 250	4,8 max. 8,4	900 1450 1150	1
ca.58	8,4 3,9 0-1,0	1515-1525 1555-1585 1650								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) F	nil-load stop	6 Rotational- speed limitat	11.3211	el delivery aracteristics	Starting f	uel delivery 5	43 lal	e stop
Test on to	cm ^{-/1000} strokes	Note changed to) rev/min 3	rev/min	cm-/1000 strokes 5	rev/min	cm#1000 strokes 7	rev/min 8	travel mm 9
900	50,5-52,5 (49,5-53,5)	1515-1525*	1450	54,0-56,0 (52,0-58,0)	300	max. 15 mm RW 75,0-85,0 (70,0-90,0 8,5-11,5 (7,0-13,0)	

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.84

BOSCH

Geschaftsbereich KM. Kundendienst, Kfz-Ausrustung.

1980 by Robert Bosch GmbH. Postfach 50: D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale di Alternagne par Robert Bosch GmbH.

40

WPP 001/4 IHC 7,6 a 3. Edition

Ē.i

PES 6 MW 100/320 RS 1504

RSV 350 ... 1250 MW 2/305 R DHK 1 688 901 016

0 403 476 004

207 + 3 bar

company IHC

engine DT 466

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,20-3,30

Porticio ing at prestroke

Testoil-ISO 4113

(3,15-3,35)

mm (from BDC)

/ 10,5 mm RW

Rotational speed	Control rod	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre tensioning (torque control valve)
rev/min	mrn 2	cm3+100 strokes	cm3/ 100 strokes 4	mn) 2	cm%100 strokes	mm 6
1250	$7,3^{+0,2}$	6,9 - 7,1	0,3 (0,5)			
350	5,5 - 5,7	1,8 - 2,2	0,3 (0,5)			
1000			0,3 (0,5)			
800			0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	r rated speed	Lrev/min	Interm	ediate ra	ted speed	4	Lower	rated speed	(3)	rque control
Degree of deflection	Control rod travel	Control rod travel				Control		Control rod travel		Control rod travel
of control	ww	mm rev/min				deflection in degrees	rev/min	mai	revimin	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	1			ca. 32	350	5,6	1100	7,3-7,5
			1				100	min. 19	1000	7,8-8,0
ca.60	1360-13	310=6,4 390=3,1 0,3=1,7					350 430-490	5,5-5,7 = 2,0	800 500	8,5-8,7 8,6-8,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(20)	ill-foad stop emp 40 C (104 F)	Rotational speed limitat		iel delivery paracteristics	Starting f	ruel delivery 5	(4a) (d)	e stop ±Control rud
rev/min	cm ³ /1000 strokes	changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ^{\$} 1000 strokes 7	rev/m:n 8	travel mm 9
1250	69,0-71,0 (68,0-72,0)	1300-1310*	1000 800	76,0-78,0 (75,0-79,0) 82,5-84,5 (81,5-85,5)	100 350 1375	min.140 18,0-22,0 (17,0-23,0) 25,0-37,0 (24,0-38,0)		5,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.84



4

WPP 001/4 IHC 7,6b

3. Edition

En

il-150 4113

PES 6 MW 100/320 RS 1504 RSV 350 ... 1200 MW 2/306 R

Control rod

7.4+0.2

0 403 476 005

DHK 1688 901016 207 + 3 bar supersede 3.80 company IHC progine DT 466

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,20-3,30

2

Port closing at prestroke

Rotational

speed

rev/min

1200

(3,15-3,35)

cm^{-/100'} strokes

6.5 - 6.7

Fuel delivery

mm (from BDC) bei 10,5 mm R

Difference Control rod travel Fuel delivery Spring pre-tensioning (torque-control valve)

cm // 100 strokes mm cm // 100 strokes mm 6

0,3 (0,5)

350 | 5,7-5,9 | 1,8-2,2 | 0,3 (0,5) 1000 | 0,3 (0,5) 800 | 0,3 (0,5)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Juppe	r rated speed	rev/min	interm	ediate ia	ated speed	(4)	Lowe	r rated speed	1(3)	raue control L'Control rod
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	travel mm
loose	800	= 0,3-1,0				ca. 32	350 100 350	5,8 min. 19 5,7-5,9	1100 1000 800	7,5-7,7 8,1-8,3 8,6-8,8
ca. 60	1310-1	260=6,5 340=3,1 : 0,3-1,7					430-4		500	8,7-8,9

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	il-load stop emp 40°C (104 F)	6 Rotational- speed limitat		el delivery aracteristics	Starting fi	uei delivery 5	(43) Idl	Control rod
	cm ^{-/} 1000 strokes	changed to 1 reviews	rev:min	cm=/1000 strakes 5	revimin 6	cm=/1000 strokes 7	rev. min	travel mm 9
1200	65,0-67,0 (64,0-68,0)	1250-1260*	1000 800	(71,0-75,0)	100 350 1325	min. 140 18,0-22, (17,0-23, 24,0-36, (23,0-37,	Φ Φ) Φ	5,8

Checking values in brackets

1 mm less control rod travel than col. 2

1.84

Geschaftsbereich KM. Kundendienst. Kfz-Ausrustung.

[1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1: Printed in the Federal Republic of Germany Imprime en Republique Federale d Allomagne par Robert Bosch. GmbH.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 39,8 b 2. Edition

En

(1) PE 6 P 120 A 300/3 LS 267	supersedes	1.82
(2) PE 6 P 120 A 320 LS 268 RSUV 300-750 P 9 A 332/1 R	company	Südbremse
(3) PE 6 P 120 A 300 LS 330		D/TD/TBD 602 V 12
1 - 5 - 3 - 4 - 2 - 6 (1) /1 - 6 - 2 - 4 - 3 - 5 (2 u. 3).	TBD 602 V 12 S
1 - 5 - 3 - 4 - 2 - 6 (1)	±0,5° (=	0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.-Nr. 0 401 806 046 (1) 0 401 876 214 (2)

A. Fuel Injection Pump Settings 2,3 - 2,4

0 401 316 052 (3)

Rotational speed	Control rod travel	(2,25-2,45) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
700	13,0+0,1	26,0 - 26,4 (25.7 - 26,7)	(0,9)			
300	5,5-5,7	1	p,8 (1,2)	I		
		assemb	only appl y 1 688 9 1 680 750	101 U19 a	nozzle-and-ho nd fuel-injecti	lder on test

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ea	4 Lowe	r rated spe		3 Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
lose	800	0,3-1,0	-	-	-	ca.29	300	5,1	700	13,0+0,	
	X =	5,25					100	5,5-5,7	325 450	14,2+0, 13,0+0,	
ca.70	12,0 4,0 980	790 - 800 815 - 845 0,3 - 1,7						5=2.0 mm			

The numbers denote the sequence of the tests C. Settings for Fuel Injection Pump with Fitted Governor

(2)

2 Full-loa		speed limitat.		3a Fuel delivery characteristics Starting fuel delivery Idle		tuel delivery	(5a) Idle stop		
	40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	canal 1998 of the Indiana	rev/min 8	travel mm 9	
in ac	ull-load deli cordance with (1) and (2)	the engine	linsped	tion sheet.		19,5-21,0			

Checking values in brackets

1 mm less control rod travel than col. 2

WPP 001/4 MWM 19,9 b Edition

En

(1) PE6P 120 A 320 RS 353 (2) PE6P 120 A 300/3 RS 342

tubing 1 680 750 067.

RSUV 300-750 P 9 A 333/1 R

supersedes 8.82

company MWM - Südbremse

D/TD/TBD 601-6

601-6 S

Komb.-Nr. 0 401 876 215 (1) 0 401 816 053 (2)

All test specifications are valid for Bosch Fuel-Injection Pump Test Benches and Testers

assembly 1 688 901 019 and fuel-injection test

Values only apply to test nozzle-and-holder

A. Fuel Injection Pump Settings

2,3-2,4 Port closing at prestroke (2.25-2.45)

mm (from BDQW=19.5 - 22.5 mm

Rotational speed	Control rod travel	Fuei delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
irev/min [1	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
700	13,0+0,1	26,0 - 26,4 (25,7 - 26,7-)	0,5 (0,9)			
300	5,5-5,7	1	0,8(1,2)			
: ! !						

Adjust the fuel delivery from each outlet according to the values in C

B. Governor Settings

(1)

Upper Degree of deflection of control lever	rated speed	Control rod travel mm	Intermediate Degree of deflection of control lever	rev/min	Control rod travel mm	4 Lowe Degree of deflection of control lever 7	rated spe rev/min 8	Control rod travel mm	(3) Toi	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca.29	300	5.1	700	13,0-13
-2 70	x = 12,0=7	5,25 90-800					100 300 2.0=	5,5-5,7 315-375	450 325	13,0-13, 14,2-14,
ca.70	4,0=8	15-845 ,3-1,7					2,0	373 373		

The numbers denote the sequence of the tests

without (2) and

C. Settings for Fuel Injection Pump With Fitted Governor

(5a) Idle stop Fuel delivery (3a) Starting fuel delivery Rotational-2) Full-load stop characteristics speed limitat. Control rod Test oil temp. 40°C (104°F) Note: travel changed to rev/min cm³/1000 strokes ********** rev/min mm ev/min cm³/1000 strokes re∀/mเก rev/min mm_RW 100 19,5-21,0 The full-load delivery ia adjusted on the engine in accordance with the engine inspection sheet.

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 ALO 13,8 b

1. Edition

PES 6 P 120 A 320 RS 354 Komb.-Nr. 0 402 046 159

RQV 375-1050 PA 314 KR

companyAllis Chalmers engine 6138 I A.C.-Nr. 743 96 184

supersedes

Values only apply to test nozzle-and-holder assembly 0 681 443 022 and fuel-injection test tubing 1 680 750 026.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel mm	Fuel delivery	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	12,0	26,4-27,1	1,0			
600 600 600 200	6,0 12,0 15,0 6,0	8,6-9,8 26,3-28,2 33,8-36,2 4,2-5,2	1,0 1,0 1,0 1,0			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	speed		Intermediate	rated sp	eed	Lower rated	speed	1	Stiding s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (28	of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm 11
ca.66	1050 1100 1150 1210 1300	15,0-18,0 10,7-15,0 6,0-11,6 0-7,0 0		-	-	ca.10	250 350 450 550	6,4-8,0 3,0-5,2 1,3-2,8 0	-	-

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roa Test oil ten		Rotational-speed 2b ilmitation intermediate speed	Fuel deliv	rery characteristics (58)	Starting Idle switchin	•	Torque- travel	Control 5 Control rod travel
rev/min	cm³/1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1050	210,0-216,0 (208,0-218,0)	1060-1080*	900	210,0-216,0 (207,0-219,0	1	130,0-170,0		
			700	238,0-244,0 (235,0-247,0		19,0-25,0		

Checking values in brackets

* 1xnm less control rod travel than col. 2

0,1

12.83

BOSCH

Gesichäftsbereich KM. Kundendienst. Kfz-Ausrustung. C. by Robert Bosch GmbH. D-7. Stuttgart 1. Postfach 50. Printed in the Federal Republic of Germany Imprime en Republique Federale d Allemagne par Robert Bosch GmbH.

Testoil-ISO 4113

WPP 001/4 DEE 10.1 a 2

1. Edition

PES 6 P 110 A 720 RS 370

RSV 500-900 P0/448 DR

Komb.-Nr. 0 402 076 048

company John Deere

engine 6619 T

Ail test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,75-2,85 Port closing at prestroke (2,70-2,90)

mm itrom BDC:

Rotational speed	Control rod travei	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm1/100 strakes	cm 100 strokes	mm	cm /100 strokes	mm
1	2	3	4	2	3	ô
900	10,6+0,1	12,3-12,5	0,4			
500	6,4-6,6	1,9-2,3				
	İ			i i		

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

(1) Jape	er rated speed		Interm	egiate rat	ea speed	4	Lower	rated speed	(3) To	raue contro: I Control roa
Degree of genection of control	Control rod travel	Control rod travel				Control- lever deflection	rev/min	travel	rev/min	travel
lever	2	3	4	5	ò	in degrees	8	9	10	11
loose	800	0,3-1,0	-	-	•	ca. 26	500	6,4	900	0
							100 500	19,0-21,0 6,4	650	0,7
ca. 42	1000	6,4					660-720			

The numbers denote the sequence of the tests

C. Settings for Fuel injection Pump with Fitted Governor

	il-load stop emp 40°C (104°F)	Rotational- speed limitat Note changed to	li Sali	el delivery arzeteristics	Starting f lole	uer gehvery 5	43)	Control rod
rev/min	cm ² /1000 strokes	revimin	rev/min 4	cm=/1000 strokes 5	rev/min 6	cm ¹¹ 1000 strokes 7	revimin 8	.mm 9
900	123,0-125,0 (120,0-128,0)	945-955*	650	138,5-141,5 (135,5-143,5)	100 High 1000 Low 500	180,0-200, idle spee 47,0-57,0 idle speed. 19,0-23,0	d	6,4

Checking values in brackets

mm less control red travel than col. 2

2.84

eschaftsbereich XM. Xundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50. 0-7000 Stuttgart 1. Printed in the Federal Republic of Germany. nprime en Republique Federale d'Allemagne par Robert Bosch GmbM.

WPP 001/4 MAN 17,4 b 8

1. Edition

PE 10 P 120 A 520/5 LS 850 RQV 250-1150 PA 670-2

1-8-7-6-3-5-2-10-9-4 0-27-72-99-144-171-216-243-288-315° \pm 0,5° (\pm 0,75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersectes

companMAN

engine D 2540 MLE 405 kW Komb.-Nr. 0 401 849 179

A. Fuel Injection Pump Settings

Festoil-ISO 4113

mm (from BDC)

Zyl. 10

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1150	11,2+0,1	18,5 - 18,7	0,5 (0,9)			
250	6,2-6,4	1,2-1,8	0,8 (1,2)			
	Ī			1		1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	ı	Sliding s	leeve travel
deflection of control	rev/min Control rod travel mm	Control rod travel mm (28)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm ;;
1	2	3	4	5	6	ca. 12	100	min. 7.8		1.7-2.0
max.	1210	15,2-17,8	-	-	_	ca. 12	250		800	5,6-5,9
ca. 63	10,2 4,0 1400	1190-1200 1210-1240 0 - 1,0						435 = 2,0	1150	7,8
						<u>3</u>				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed 20 limitation stermediate speed			Starting Idle switchir	, •	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
LDA 1150	1.0 bar 185,0-187,0 (182,0-190,0		LDA 500	0 bar 119,0-121,0 (116,0-124,0		205,0-225,0 (201,0-229,0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2 12.83

D. Adjustment Test for Manifold Pressure Compensator

revimin decreasing pressure - in bar gauge pressure Testatin = 500 Junution Measurement Setting Pump/governor Control rod traveldifference (1) par mm bar Gauge pressure = Gauge pressure = 11,2-11,3 9,6-9,7 10,8-10,9 10,1-10,3 PE 10P.. LS 850 + RQV.. PA 670-2 1,0 0,65 0,54

Notes

(1) when n =

revimin and gauge pressure =

par (= maximum full-load control rod travel)

MAN 17,4 b 8

WPP 001/4 SCA 8,0 h 5. Edition

PE 6 P 110 A 720 RS 3034

RQV 200-1200 PA 529

Komb.-Nr. 0 401 846 732

supersedes6.83 company Scania DSI 801

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	trc 10 (3,25-3,45)	mm (from BDC)	= RW 9,0	- 12,0 mm	
Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
700	13,2+0,1	12,9 - 13,1	0,5(0,7)			$2,5 \pm 0,1$
225	5,5-5,7	1,2 - 1,6	0,2(0,4)			(2,2 - 2,9)
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

deflection of control	i 1	Control rod (a) travel mm rev/min (28)	Intermediate Degree of deflection of control lever	rated sp rev/min 5	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	Sliding si rev/min 10	mm
max. са. 64	1200	15,2-17,8 1240-1250	-	-	-	ca. 14	100 225	min.7,0 5,5-5,7	150 500 850	0,5-0,8 3,7-4,3 6,2-6,4
Ca. 64	12,2 4,0 1 5 50	1395-1425				(3a)	390-4	150 = 2,0	1200	8,6

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		Rotational-speed 20 timitation intermediate speed	Fuel delivery characteristics 58 high idle speed 50		Starting tidle switching	•	Torque- travel	Control 5 Control rod travel
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strakes	rev/min cm³/1000 strokes 6 7		rev/min	mm 9
LDA 700	0,9 bar 129,0-131,0 (127,0-133,0)	1240 - 1250*	LDA 1200 LDA 500	0,9 bar 134,5-137,5 (132,0-140,0) 0 bar 79,0-83,0 (77,0-85,0)		190,0-240,0 = 20,0-21,0 mm RW	-	-

Checking values in brackats

* 1 mm less control rod travel than col. 2

^{**} In case valve-spring spread is higher, change the initial tension accordingly.

D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 h

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 3034 + RQVPA 529	0,90	0 0,44 0,29	13,2 - 13,3 11,3 - 11,4 12,7 - 12,8 11,7 - 11,9
		•	

Notes

(1) when n =

revimin and gauge pressure =

bar (= maximum full-load control rod travel)

40

WPP 001/4 MWM 39,8 c

2. Edition

En

stoil-ISO 4113

(1) PE 6 P 130 A 300 LS 3051 (2) PE 6 P 130 A 320 LS 3052 RSUV 300-750 P 9 A 332/1 R supersedes 1.82 sompany MWM - Südbremse engine TBD 602-V 12 K 1 - 5 - 3 - 4 - 2 - 6 (1) 1 - 6 - 2 - 4 - 3 - 5 (2 u. 3) + 0.15 -120-135-240-255° ± 0.5° (± 0.75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Komb.-Nr. 0 401 816 703 (1) 0 401 876 711 (2)

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDbei RW = 21,0 mm / 0 401 816 705 (3)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	12,0+0,1	34,7 - 35, 1 (34,4 - 35,4	0,5 (0,9)			
300	5,3-5,5		0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	intermediate Degree of deflection of control lever	rev/min	Control rod travel mm	4 Lowe Degree of deflection of control lever 7	rev/min	Control rod travel mm	3 Tor	que control Control rod travel mm
lose	800	0,3 - 1,0	-	-	-	ca.29	300	4,9	700	12,0+0,1
	X =	5,25					300	5,3-5,5	325 450	13,2+0,6 12,0+0,1
ca.70	11,0 4,0 980	790 - 800 815 - 345 0,3 - 1,7					325-38	5=2,0mm		

The numbers denote the sequence of the tests

without(1),(3)and

C. Settings for Fuel Injection Pump with Fitted Governor

(2)

2 Full-toa		6 Rotational- speed limitat	M/	el delivery iracteristics	Starting Idle X	fuel delivery XXX	(5a) Idi	e stop
rev/min 1	40°C (104°F) cm ³ /1000 strokes 2	changed to rev/min	rev/min 4	cm ³ /1000 strokes 5	revimin 6	с южжеех 7 mm RW	i ev/min 8	travel mm 9
in 2000	1-load delive rdance with 1) and (2) o	Hhe engine ir	ispect	the engine ion sheet. ite in tandem.		19,5-21,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MWM 19,9 c 3. Edition

Testoil-ISO 4113

(1) PE 6 P 130 A 320 RS 3057 (2) PE 6 P 130 A 300 RS 3056

RSUV 300-750 P 9 A 333/1R

supersede8.82

company MWM - Südbremse TBD 601-6 K

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.-Nr. 0 401 876 712 (1)

A. Fuel Injection Pump Settings

0 401 816 704 (2)

Port closing at prestroke

(2.75-2.95)

mm (from BDC) bei RW = 21.0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	0
700	12,0+0,	34,7 - 35,1 (34,4 - 35,4)	0,5 - (0,9)			
300	5,3-5,	5 4,8 - 5,6	ju,8 (1,2)	' [

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	e rated spe	ed	4 Lowe	r rated spe	eed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.28	300	4,9	700 325	12,0+0,
	x =	,75					300	5,3-5,5	450	12,0+0,1
ca. 66	11,0 4,0 980	790-800 815-845 0,3-1,7								

The numbers denote the sequence of the tests

without(2) and

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	d stop	6 Rotational- speed limitat. 3a Fuel delivery characteristics			Starting/	fuel delivery	(5a) Idl			
	40°C (104°F) cm ³ /1000 strokes 2	Note changed to rev/min	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1 000 strokes 7 mm RW	rev/min 8	Control rod travel mm		
the e	ull-load delingine in acco	very ia adjust rdance with	ted o	n gine	100	19,5-21,0				

Checking values in brackets

1 mm less control rod travel than col. 2

Testoil-150 4113

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 14,6e1 2. Edition

PE 8 P 110 A 320 LS 3802-1

RO 300/1150 PA 187-11

supersede 2.83 company Daimler-Benz OM 422

206 kW

Komb.-Nr. 0 401 848 751

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

See Service Information VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC7 $\sqrt{1}$, 8: RW = 9.0-12.0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery + cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery * cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,3+0,1	13,1-13,3	0,4(0,75)	12,3+0,1	13,1-13,3	
300	8,5-8,7	1,5-2,1	0,45(0,75)8,5-8,7	1,5-2,1	
600	-	C, Sp. 4 u. 5	(0,9)	-	C, Sp. 4 u.5	
	* with r	eturn throttlc	(1)	*	without return	throttle (2)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider	Full-load :	•	•	cifications (4)	Idle spec	-		cifications (5)	Torque o	control	(3)
rev/min	Control rod travel mm	rev/min	Control rod travel rmm	Control red travel rnm 5	rev/min	rev/min 7	Control rod travel rnm 8	rev/min 9	Control rod travel mm	rev/min	Control rod travei mm 12	
650	13,0-14,0	650	13,5		1195-1210 1235-1265 0-1,5	300	8,6	300 430-4	min. 10,0 8,5-8,7 70 = 2,0 max. 1,8	•	-	
									10 min -1		<u> </u>	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever ap. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics (3b)	Starting f	uel delivery d (Sontrol
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	rod travel cm ³ /1000 strokes / mm 7
(1) 1150	131,0-133,0 (128,5-135,5)	600	600	110,0-114,0 (107,0-117,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

	overno						idle sne	ed regula		MB 14,6 e	Torque	control
PRG che	Control rod	1	Full-load Setting p rev/min 3	Control		rev/min 6	Setting (Control rod travel	Test spe	cufications 5 Control rod travel	revimin	Control rod travel
650	13,0-1	4,0	650	13,5	4,0	1195-1210 1235-1265 0 - 1,5		8,6	300 430-	min.10,0 8,5-8,7 470 = 2,0 max. 1,8	•	-
on flywe	control travellight assembly			I Inje	mm ection	so n Pump v				210 min ⁻¹		1 mm less control rod travel

1	Full-load d governor o Test oil ten	elivery on control·lever np=40°C (104°F)	(2) Control rod stop	3a) Fuel deli	very characteristics	Starting lidle spee	tuel delivery 6 Control (6) Irave
!	rev/min 1	cm ³ /-1000 strokes	rev/min 3	revimin 4	°cm :=1000 strokes 5	rev/min	cm /1000 strokes / mm
	(2) 1150	131,0-133,0 (128,5-135,5)	600	600	112,0-116,0 (109,0-119,0)	100	130,0-150,3 (126,0-154,0)
Ì			· · · · · · · · · · · · · · · · · · ·				

Checking values in prackets

B. Governor Settings

Checkin		Full-load	speed re				idle spec			substantians (E)	Torque control (3)		
PRG che	Control rod travel	Setting p	Control	Test spe Control rod travel mm	rev/min	(4)	Setting of revimin 7	Control rod travel		cifications (5) Control rod travel mm 10	rev/min	Control rod travel	
		-		·	-			•					
			:	;	1								
			:	:	4								
	· ·		:		:	,							
											•		
	control travel	ension a =		mm		Sp	eed regul	ation At	•		<u> </u>	1 mm less contro rod trave	

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104°F)	(2) Control rod stop	(3a) Fuel deliv	very characteristics	3b Starting I	luel delivery ed	6 Control rod travel
rev/min	: :cm ³ /=1000 strokes	rev/min	rev/min	cm ³ /=1000 strokes	rev/min	cm ³ /1000 strokes	/ mm
1	2	3	: 4	5	. 6	7	
				1			

NPP 001/4 MB 14,6c1 2. Edition

PE 8 P 110 A 320 LS 3802-1

ROV 300-1150 PA 524-9

supersede9.83
company Daimler-Benz

Komb.-Nr. 0 401 848 752

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} \stackrel{+}{=} 0.5^{\circ} (\stackrel{+}{=} 0.75^{\circ})$

engine 0M 422 206 kW

See Service Information VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		4,0 -4,1 3.95-4.15)	mm (from BDC)	<u>zv1. 8:</u>	PN = 9.0 - 12.0	mm		
Rotational speed	Control rod travel	Fuel delivery *	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)		
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	cm ³ /100 strokes 3.	mm 6		
1150	12,3+0,1	13,1-13,3	0,4(0,75	12,3+0,	1 13,1-13,3			
300	8,0-8,2	1,5- 2,1	0,45(0,7	ł	2 1,5-2,1			
600	-	C, Sp. 4 u. 5	(0,9	-	c, Sp. 4 u.5			
	* with r	eturn throttlc	(1)		* without ret	urn throttle (.')		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		intermediate	rated sp	eed	Lower rated	speed	1	Sliding s	leeve travel
DCB.000.	rev/min Control	Control rod (1	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		, ①
of control	rod travel mm	mm rev/min (2	of control	rev/min	mm (4)	of control lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17.	8 -	-	-	ca. 21	100	min. 9,7	250	1,0-1,2
ca. 66	11,3	1190-1200 1235-1265					300	3,0-8,2	550 850	3,4-3,7 4,9-5,3
1	4,0	1233-120	'			330-465			1150	7,6
				<u> </u>		(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil tem		Rotational-speed 20 timitation intermediate speed	Fuel deliv		Starting Idle	. •	Torque- travei	control (5) Control rod travel
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1 000 strokes 7	rev/min 8	mm 9
1150	131,0-133,0 (128,5- 135,5	1190-1200*)	600	110,0-114,0 (107,0-117,0)	190	130,0-150,0 (126,0-154,0	1 1	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Upper rated s	peed			intermediate	rated spe	eed		Lower rated	speea			Sliding sl	eeve travel
Degree of genection		Control rod	(1a)	Degree of		Control roo	1	Degree of deflection		Control r travel	00		1
of control ever	rootravei mm	mm revimin	(2a)	of control lever	revimin	നന	4	of control lever	rev/min	mm	3	rev/min	mm
•	2	3	_	4	5	6		·	8	9		10	11
max.	1150	15,2-1	7,8		-	-		ca. 21	100	min.	.9,7	250	1,0-1,2
ca. 66	11,3	1190-1 1235-1	200 265			: :		:	300	8,0-		550 850 1150	3.4-3,7 4,9-5,3 7,6
:	!	•		:				330-465);			; 1150	/,0
:	:	•		•				(3a)					

Full-load d Control-roo	envery	Rotational-speed (limitation) Lintermediate speed	20 Fuel deliv	ery characteristics (5a)	Starting Idle	tuel delivery (6)	: Torque- : travel	Control Co
rev/min	cm ³ /1000 strokes	/ev/min (1 rev/min	cm 11000 strakes	revimin S	cm-/1000 strakes	rev/min 8	travel mm
(2) 1150	131,0-133 (128,5-135			112,0-116,0 (109,0-119,0		130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

B. Governor Settings

Upper rated	speed			Intermediate	e rated spe	ed		Lower rated	speed			Sliding sl	eeve travel
Degree of deflection		Control rod	(1a)	Degree of deflection		Control rod travel		Degree of deflection		Control travel	rod		
of control	rod travel		(2a)	of contro- lever	rev/min	mm	(4)	of control lever	revimin	mm	3	rev/min	mm
	2	2	\cup	. 4	5	6		7	8	9		10	11
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	i	:											i 1
	; !	l		1									1
		•							4				}
	!							(3a)	1				<u> </u>

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		intermediate speed		Fuel delivery characteristics (5a) high idle speed (5b)		fuel delivery (6)	Torque- travel	Control rod	
rev/min	cm ³ /1000 strokes	rev/min (4a)! :rev/min	cm ³ /1000 strokes	rev/min	!	rev/min	mm	
1	2	3	4	5	6	7	8	9	
	1		!				:		
	•	• :	:			1			
1		i			İ		:		
		!							
			:		1				
	4			1			:		
	•				<u> </u>		: 	L	

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

WPP 001/4 MB 18,3 f 2. Edition

PE 10 P 110 A 320 LS 3818

and Governors

RO 750 PA 636

supersede 3.83 _{company} Daimler-Benz OM 423 197 kW (268 PS)

Komb.Nr. 0 401 849 708

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4 $0 -27 -72 -99 -144 - 171 - 216 - 243 - 288 - 315° <math>\stackrel{+}{=} 0,5°$ ($\stackrel{+}{=} 0,75°$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.95-4.15)

mm (from BDC = RW 9,0 - 12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	. mm
1	2	3	4	2	3	6
700	13,5+0,1	13,4-13,6	0,4(0,8)			
300	8,5-8,7	1,4-2,2	0,4(0,7)	!		
		<u> </u>		!		:
			İ	! !		
	ľ			1		

B. Governor Settings

Checkin	g of slider	Full-load	-	-	cifications (4)	Idle spec	-		cifications (5)	Torque o	control 3
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel rnirn 5	rev/min	rev/min 7	Control rod travel mm 8	rev/min	Control rod travel mm	rev/min	Control rod travel mm 12
-	-	-	-	12,5 4,0 900		-	-	-	-	-	•
	control travel							750)-755 min	1	1 mm less control

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	delivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivi	ery characteristics	Starting t	d Control
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min	cm³/-1000 strokes	rev/min	rod travel cm ³ /1000 strokes/ mm 7
70)	134,0-136,0 (131,0-139,0)	-	-	-	100	140,0-160,0 (136,0-164,0)

Checking values in brackets

2.84

BOSCH

WPP 001/4 MB 21.9 b

3. Edition

RQV 350-1150PA493

PE12P120A320LS3819-1

PA 493-2 1- 5- 9- 8- 3 - 4 - 11 -10- 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315 +0,5 (+0,75)

supersede 3.83 company Daimler-Benz OM 424 A 390 kW (530 PS)

Komb.-Nr. 0 401 840 710

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3.95-4.15)

mm (from BDC)

Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 s'rokes	Difference cm ³ / 100 strokes	Control rod trade! mm.	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1150	11,1+0,1	15,9-16,1	0,5(0,8)			
350	4,8-5,0	1,4 - 2,0	0,8(1,2)			
			ply to te 901 019 50 067.	st nozzle and fuel-	-and-holder injection test	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	rev/min	Control red	Intermediate	rated spe	eed Control rod	Lower rated	speed	Control rod	Sliding sleeve travel		
deflection of control	Control rod travel mm	travel (la	deflection of control lever	rev/min	travel 4	deflection of control lever	rev/min	travel 3	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	1 †	
max.	1150	15,2-17,8	-	-	-	ca.14	100	min.8,5	300	0,9-1,1	
ca. 64	10,1 4,0	1190-1200 1280-1310					350	. , .	580 870 1150	3,5-3,7 5,2-5,4 7,8	
	1375	0-1,0			_	400-600 ③a					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro	stop	imitation	Fuel deliv	rery characteristics (53)	idle	, 🔾	Torque- travel	control 5
Test oil temp. 40°C (104°F) (2) rev/min cm³/1000 strokes 1 2		rev/min 4a	rev/min cm³/1000 strokes		switchir rev/min	١	rev/min	Control rod travel mm
LDA 1150 1150	0,6 bar 159,0-161,0 (156,0-164,0) 118,0-121,6 (115,0-164,0	þ	LDA 650 LDA 500	0,6 bar 160,0-165,0 (15 7 ,0-169,0 0 bar 127,0-129,0 (124,0-132,0		140,0-160,0 (136,0-164,	_	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.84

** Ajusted at the inner lever of the reduced-delivery stop

Geschäftsbereich KM. Kungendienst, Kfz-Ausrustung. C by Robert Bosch GmbH, D-7 Stuttgart 1. Postfach 50. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 b

- 2 -

Samp governor	Setting	Measurement	diminution. Control rod travel- difference
	Gauge pressure =	bar Gauge pressure =	bar mm (1)
PE12PLS3819-1 +PA 493	0,38	0,60 0 0,32	10,8-10,9 11,1-11,2 10,0-10,2 10,1-10,3
	;	•	L.

40

WPP 001/4 SCA 14,2 e

1. Edition

PE 8 P 120 A 920/4 LS 7002-1

RSV 350-1050 P 1/504

1-2-7-3-4-5-6-8 je 45° $\stackrel{+}{=}0,5^{\circ}$ ($\stackrel{+}{=}0,75^{\circ}$)

Values only apply to test nozzle-and-holder assembly: 688 901 019 and fuel-injection test

tuning 11, 320, 751 19 15 enson Fuel Injection Pump Test Benches and Testers

Supersears Seab-Scania

Komb.-Nr. 0 402 678 801

A. Fuel Injection Pump Settings 5,0-5,1

Port closing at prestroke

Testoilisto 4113

(4,95-5,15

mm . ** 300 RW=9,0-12,0 mm

Rotational speed	Control rod	Fuel delivery	Oifference	Control rod trave	Figel delivery	Spring pre tensioning (torque-control valve)
revimin	mm 2	cm ¹ 00 strokes	om 100 strokes 4	2	cm=100 strakes	mm o
700	13,2+0,1	18,7-18,9	0,6(0,9)			
350	4,4-4,6	1,4-1,8	0,3(0,6)			
 						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of genection of control lever	r rated speed Control rod travei mm		interm	ediate rat	ed speed	Control lever deflection in degrees 7	revimin 8	rated speed Control rod travel mm 9	revimin	rque control Control rod travel mm
loose	800 x =	0,3-1,0 6,0	-	-	•	ca.30	350 350 440-5	4,4 4,4-4,6 00 = 2,0	-	-
ca. 64	12,2 4,0 1300	1090-110 1160-119 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp: 40°C (104°F)	11 73 1 11341		ei delivery aracteristics	Starting f	ue; denvery 5	(Cantrol rod		
revimin	cm ² /1000 strokes	changed to 1 rev/min 3	revimin 4	cm#1000 strokes 5	rev-min	cm=/1000 strokes 7	rev/min 8	travel mm 9	
700	187,0-189,0 (184,0-192,0)	1090-1100*	1050	183,0-191,0 (181,0-193,0)	100	240,0-290 =20,0-21, mm RW		•	

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

WPP 001/4 VOG 22,6 a

2. Edition

PE 8 P 120 A 520/4 RS 7010

RQV 250-850 PA 686

1 - 4 - 6 - 2 - 5 - 3 - 7 - 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

supersade.83
company Volgograd
8 DWT 330
engine 243 kW

Komb.-Nr. 0 402 648 809

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings.

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
850	13,0+0,	19,4-19,6	0,5(0,9)			
250	5,0-5,2	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s Degree of deflection of control lever	rev/min	Control rod (1a) travel mm (2a)	Intermediate Degree of deflection of control lever	rated spi rev/min 5	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	Slicting s rev/min 10	eeve travel
max.	935	15,2-17,8	-	-	-	ca. 9	100 250	min.6,6 5,0-5,2	250 650	1,1-1,3 4,5-4,8
ca.61	12,0 4,0 1100	890-900 950-980 0-1,0				285-390	340-4	00 = 2,0	850	7,2
						(3a)	<u> </u>			

Torque control travel a =

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C. Settings for Fuel Injection Pump with Fitted Governor

Fuli-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed (20) limitation intermediate speed	Fuel delivery characteristics (5a) high idle speed (5b)		Starting Idle switchin	•	travel	Control (5) Control roc travel
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strok es	rev/min 8	mm 9
LDA 850	0,7 bar 194,0-196,0 (191,0-199,0)	890-900*	LDA 500	0 bar 125,0-127,0 (122,0-130,0)	100	245,0-265,0 (241,0-269,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.84

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

revimin and gauge pressure =

VOG 22,6 a

Pumbigovernor	Setting	Measurement	diminution Control rod travet: difference		
	Gauge pressure =	par Gauge pressure =	par mm (1)		
PE8PRS7010	0,70	:	13,0 - 13,1		
+ RQVPA686		0	10,0 - 10,1		
		0,30	12,1 - 12,3		
		0,16	10,6 - 11,0		
		g			
Notes (1) when n =	revimin and	par ce maximum fuil-ioad	a control roa travel)		